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THE AMERICAN RIFLEMAN

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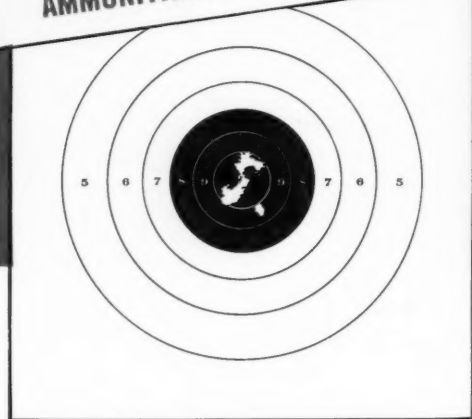
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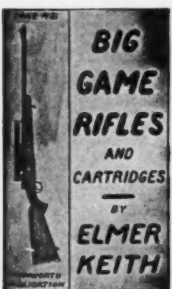
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NATIONAL RIFLE ASSOCIATION
Barr Building, Washington, D. C.

The AMERICAN RIFLEMAN

VOL. 86, No. 2

FEBRUARY 1938

NEXT MONTH

IN MARCH we will conclude the series on reconditioning the old flintlock rifles, by T. B. Tryon. This third article will deal with stock work, with notes on set-trigger adjustment.

★ ★ ★

Next month F. L. Wyman, of pistol fame, and a member of the N. R. A. Headquarters organization, will have an article on timed and rapid fire. This will be a sequel to the article by him published in January.

★ ★ ★

The annual N. R. A. Directors' Meeting is always an important event in the rifle and pistol-shooting world, and the meeting to be held next month is expected to be particularly interesting. A report on this meeting, and the Executive Committee Meeting which will immediately follow, will appear in March.

★ ★ ★

Monroe H. Goode, well-known hunter-rifleman and writer, has written for us a comprehensive article on sporting arms and ammunition developments during the year 1937. We expect to publish this article, at least in part, next month.

★ ★ ★

Of interest to all hunters, conservationists, and outdoorsmen generally, is an article on the white-tail deer by Frederick F. Jordan, Director of National Wildlife Restoration Week. This article presents some interesting facts regarding the trend of the deer population in this country. It will be published in the March issue.

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POWDER SMOKE

"He Profits Most Who Serves Best"

PROSPECTIVE members of the National Rifle Association nearly always ask "What would I get out of membership?" It is noteworthy that this question is invariably asked by men who are not familiar with the underlying *objectives* of the Association, the history of how it works, or what it has accomplished. On the other hand, the thousands of men who had looked into the varied activities of the N. R. A. and who have gotten the "feel" of its ideals and methods, are telling their friends that the value of membership is not measurable in dollars. During the leanest years of the depression there were men of this type who managed to "hang on" to their N. R. A. membership even when financial difficulties forced dropping all their other affiliations. What is it that *these* thousands see in the N. R. A. as an answer to the question "What do I get out of it?"

Some, we expect, see a hundred thousand youngsters, the fathers and mothers of tomorrow, who are being taught on a thousand "junior" ranges how to handle a gun safely, wisely, and well.

Some may see the steady improvement of police marksmanship and the continued growth of adequate police-range facilities, most of which take the form of municipal ranges open also to civilian pistol shooters.

Many will see groups of legislators gathered around long tables in committee rooms listening to those who propose anti-firearms laws, and weighing the arguments of those who oppose such laws.

There are others who will see the pitiful spectre of 1918, with hundreds of thousands of American youth going into action, many of whom had never been taught even the fundamentals of loading, aiming, or firing the Service rifle.

Some will see the improvements in guns, sights, and ammunition which have been made available to the shooters be-

cause of the crystallization of sentiment and demand through the focal point provided by a central organization.

Others will see target shooting growing out of an essentially local pastime with a maze of conflicting rules into the status of a sport recognized by the press and the public as a desirable, healthy means of recreation governed by standardized rules and conducted on clean, well-built ranges.

Probably no two men would return exactly the same answer to the question "What does the N. R. A. do for me?" What does *insurance* do for a sportsman? What do the police and fire departments do for a man? What do the Army and the Navy do for a citizen? We wouldn't be without any of them. We are willing to pay to keep them. Why? Because *when* we need them we want to know we can call on them and find them *ready* to respond and financially and physically *able* to respond.

Perhaps that is the best answer to the question "What has the N. R. A. done for me?" At a hundred points it has provided protection for the shooter's interests, has increased his prestige, unified his scattered interests and efforts, planned and provided for the future, and made America a safer place in which to live. Through the years the devotion of the American rifle and pistol shooter to this ideal has built an Association which today enjoys a prestige in legislative bodies and in conferences of national citizens' groups and sportsmen's groups unequalled by any other organization of similar size in America.

The slogan of the "Service Clubs"—"He profits most who serves best"—might perhaps be adopted as the measure of our own success as a national organization, as a local club, as an individual sportsman.

The AMERICAN RIFLEMAN

FEBRUARY, 1938

Turkeys

By J. P. MILES

THIS simple little narrative is not a "story"—at least not in the popular sense, for it is founded entirely upon fact. Nor does it follow the conventional lines of current fiction. There is no plot; and if there be a hero and a heroine, it is not that I have attempted to create them, but rather that I see them in memory, over a span of nearly forty years.

"**W**HAT'S th' damage fer a crack at them turks, young feller? We come all th' way from Quartz Crick to have a pop at 'em. Jest happened to hear about it, so I hoofed it down th' crick an' got my pard, here, an' come up to git a leetle turk fer Thanksgivin', 'cause it's better'n sow-belly or venison—fer a change."

The speaker was tall and lank, still upright and active despite his years. His weather-bitten face and twinkling blue eyes bespoke intelligence, wit, resolution—and above all—kindness. He leaned on what was apparently a rifle of unusual length, incased in brown canvas.

Phil looked up and grinned.

"Two bits a shot, old-timer. Two hundred and fifty yards. It's cheap meat if you know how to buy 'em."

"I've bought plenty of meat at that range, young feller, an' a dam sight cheaper'n that, but my old eyes ain't what they uster be, 'specially if th' light ain't right. I ain't been gittin' down in th' notch right, lately, so I got me one o' them Lyman peep-sights, an' it helps right smart. Jumpin' Jehosaphat! That's a wallop in' big turkey yuh got in that thar coop! Do yuh put him up too?"

"No," said Phil, "we'll shoot for him after a while. Thirty-three pounds! Ain't he a dandy! Each fellow throws in four bits, an' we make a pool of it. High man takes the turk."

"Well, I'll take a dollar's wuth, an' here's four bits fer th' shoot-off. I jest got five ca'tridges left. Been loadin' the shells so often they're about busted, an' I can't git any more fer ol' Betsy. They don't make 'em now o' days. Damn shame to spile th' meat that-away. Why don't yuh shoot off fer th' whole kit an' caboodle, or shoot at thar heads at, say, sixty to seventy-five yards?"

"The boys are used to this kind of shootin'," said Phil, "an' they like it this way."

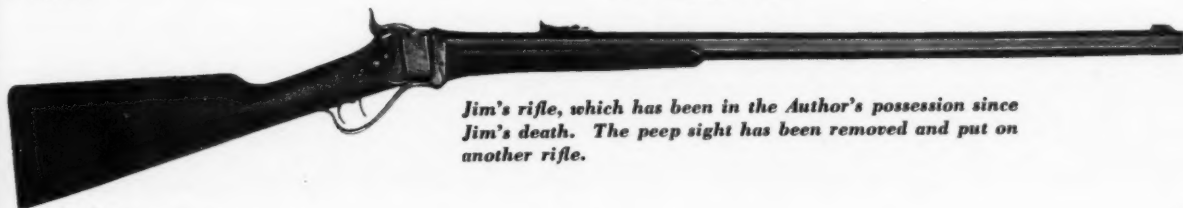
In the meanwhile the rifles were cracking merrily, and the turkeys were bringing an excellent price. The "shoot" was well patronized—as they usually are, but so far very few turkeys had been won. The range was toward the north—away from the sun, a point decidedly in favor of the marksman. Two hundred and fifty yards at the whole bird sounds like cheap meat, doesn't it? Well, with the average rifle in the hands of the average man, it isn't. But the sport of the thing draws the crowd; the spirit of rivalry keeps them blazing away. At this range, the front sight of a rifle covers the whole turkey—and then some. It isn't so easy, unless—

"Hello, Jim, ol'-timer!" greeted an acquaintance. "Goin' to show the boys a trick or two?"

"Hell, I figger they need it! How the tarnation kin a feller—any feller—shoot offhand at two hundred an' fifty yards with a leetle short-bar-r-eled popgun, heavy at th' britch an' light at the muzzle, with a *five-pound pull*? Why, ag'in yuh tetch 'er off, she's bobbled clear off th' spot. No feller kin shoot that-away. I been shootin'—man an' boy—fer more'n fifty year, an' I couldn't hit th' broadside of a mountain that-a-way. O' course, these here new guns kin shoot like hell. They kin carry up a whole lot farther'n ol' Betsy, without elevatin' th' sights; an' they kin shoot mighty fast too, but what's th' use? One pill in th' right place is what brings down th' meat. Wastin' ammunition's only good fer th' feller what sells it."

"Show the boys the old auger, Jim. Most of them haven't seen one like it."

"I reckon to, but I ain't in no hurry to start shootin' till th' sun gits a wee mite farther to th' west. My ol' eyes got to have things jest right."



Jim's rifle, which has been in the Author's possession since Jim's death. The peep sight has been removed and put on another rifle.



Lovingly he drew the old rifle from its case. A relic of a forgotten day! A buffalo gun! Graven upon the barrel was the inscription: "Sharp's Old Reliable, Silver Steel. Model 1872." Ah! What a weapon!

Single-shot, of course. Weight, 13½ pounds; 32-inch barrel; calibre, .45—110—550; still in perfect condition, inside and out. The shells, about four inches in length, slightly tapered and bottle-necked. The long, heavy bullets, hollow-butted and paper-patched; the charge, coarse-grained black powder.

Jim removed an oiled rag from the muzzle; threw down the trigger-guard, thus opening the massive breech. He drew a clean oiled rag through the bore by a leather thong, inserted a piece of paper at the breech, slanted a glance toward the sun.

"Thar!"

What a blaze of flawless steel—not a speck! The lands of the rifling were clean and sharp.

"How do you keep it so slick?" asked a bystander.

"Bar-r ile," said Jim. "It don't gum an' it don't 'vaporate.'"

"What's the two triggers for?" asked another.

"Them's Kaintucky set-triggers, son. Yuh press th' rear trigger an' that sets th' front one. An' yuh see that thar leetle set screw? Well, yuh kin screw 'er in or out, an' that regulates th' pull. I've got 'er set so's jest a thought'll tetch 'er off. Yuh got to git used to it. It would never do fer you fellers that w'ar red hats so's yuh won't shoot each other when yore out huntin'. A five-pound pull's safer fer you, but fer ol'-timers like me, Betsy's best, I figger. A long, heavy bar-r-el, plenty

of weight at th' muzzle, an' not too much at the britch, is what makes a rifle balance. When I bring ol' Betsy up to my shoulder, it's jest like she growed thar, 'cause she's got sich good balance an' her stock's got jest th' right pitch an' shape. Yore eye comes right down to th' line o' sight, an' she's stiddy; not wobblin' all over th' landscape. A well-balanced rifle, with a accurate bar-r-el, an' a set-trigger, is what makes a good shootin'-iron; an' a cool head an' a stiddy hand an' a lot of practice makes a good shot."

"Well, step up and try one," said Phil. "The boys want to see what the old cannon can do."

"Two to one he misses," said a grinning native.

"You don't want much for your money, do you?" said another.

"Seems like ten or fifteen to one'd be more like it," said a third.

"I'll cover you," I said. "Did you say twenty?"

"Hell no! I ain't got but six dollars and two bits, but I'll bet five."

"Put up your five with Phil so there won't be a misunderstanding, and I'll go you even money. I can't insult my friend by taking odds."

Jim stepped up to the line. He gazed at the distant turkey. The range was slightly uphill. He raised his rear sight a half turn. He brought the old rifle to his shoulder deliberately; to position; poised for two seconds. Then it spoke. Not the sharp crack of the more modern arm, but a heavy, jarring detonation. The turkey was seen to give one spasmodic flap, and collapse.

"Well, that's one," said Jim. "Damn shame to spile the meat. At a hundred yards I'd try th' head."

"I have ten dollars up," I announced. "Who'll cover it?"

"I will," said the big chap who had been conspicuous among the would-be marksmen; "and to make it interesting, I'll put another ten on top of it. That was just a scratch. He can't do it again."

So up went the money and down went another turkey; but it was not until the fourth bird had flopped that skepticism changed to doubt; doubt to conviction and admiration. Here was something new! Here was the *real* thing! They flocked around Jim and plied him with questions, the "shoot" forgotten.

Where did he get the old rifle? How long had he had it? What game had he killed with it?

"Well," said Jim, "my folks lived in Virginy, whar I wuz borned. When I wus a young buck I heered of th' buffalo, out thar on th' plains, an' how thar hides wus wuth a lot of money. So I run away from home, an' purty soon I had jined up with a outfit an' was skinnin' critters erlong with the rest of 'em. In less'n no time, I'd saved up enough money to buy Betsy, an' she's been a mighty good friend to me ever since. Well, when I got out thar erlong th' Platte River, thar wus a powerful sight o' buffalo—thousands an' thousands of 'em in a single herd—but thar wus so many fellers a-poppin' at 'em, that they jest melted like a snow-ball in th' sun so that erbout three year arter I got thar, they wus gittin' mighty scarce, an' thar bones wus layin' all 'round in great heaps in some places.

"O' course, I jined in th' slaughter, 'cause as I said afore, thar wus big money in hides an' I wus young then. That makes a hell of a difference, boys, in th' way a feller figgers things.

"Well, arter th' buffalo wus practically all gone, th' Gov'ment stopped th' killin' of 'em. Hell! It makes me plumb sick th' way them damn-fool dudes in Washington have been runnin' things! Why, look at th' way th' poor 'Nitchies' [Indians] wus treated. Arter th' white man tuck thar land away from 'em an' exterminated most of th' fish an' game, th' Gov'ment made treaties with 'em, givin' 'em reservations, an' guaranteein' 'em grub an' blankets an' sich-like, an' then let th' agents rob 'em. I don't blame th' poor critters fer retaliatin'. Our outfit wus jumped a couple of times by a bunch o' Utes, an' I had to cut loose with o' Betsy, 'cause I had plenty of har-r in them

days, an' I didn't hanker to lose it.

"Arter th' buffalo was cleaned out I went West into Colorado, an' I was in on th' big booms 'round Rosida an' Canyon City an' Leaderville. I drifted up North, an' arter a whole lot o' travelin' 'round, huntin', fishin', an' prospectin', I struck Dan Lace Gulch up on Quartz Crick, an' thar I been ever since. That's what I was lookin' fer—coarse gold, an' plenty of it an' plenty of water to work it. I tuck it out when I needed it, 'cause I ain't no howg, an' I figgered to stay thar per'min-like. Thar wus lots of game an' fish, an' this country an' that sort of life jest suited me. But I been thar so long now that th' ol' claim's jest erbout worked out—jest a leetle fine stuff erlong th' rim, whar it ain't been worked afore. An' th' game an' fish is gittin' sca'ce since th' country's been settled up an' roads an' trails 'a' been built all over creation.

"It ain't ol'-timers that kills off th' game an' ketches th' fish, 'cause we don't kill more'n we need; it's th' city sports an' th' small-town fellers an' a whole passel of others what ain't got no classification attall, 'ceptin' pure cussedness, what does th' damage. An' th' other fellers don't need to w'ar them damn-fool red hats on our account, 'cause we know jest what we're shootin' at afore we shoot. An' we don't need no tenderfoot game wardens to tell us not to shoot does an' fawns.

"Why, purty soon thar won't be nothin' left in this here country but coyotes an' skunks an' toorists, an' them game wardens an' forest rangers, what air a damn sight wuss. I'd shore pull up stakes an' move ag'in, but thar ain't no place to go to. They tell me Chiny's been settled up a damn sight longer'n this country. It 'pears like everythin's goin' to hell erbout th' same time with me; I'm gittin' old an' my claim's workin' out, an' th' game an' fish air a-peterin', an' I only got four more shells to reload fer Betsy, 'cause another one busted when I wus shootin' at that last turkey."

"How does Betsy shoot at long range in comparison with our rifles?" asked one of the listeners. "Does she shoot as hard?"

"Well, son, that way yuh put it, 'shootin' hard', is purty indefinite. I've shot plumb through buffalo at five or six hundred yards, lots o' times, an' a buffalo's a mighty big, tough critter. I guess that's what yuh might call 'hard shootin''—fer prac-

tical purposes. But gittin' down tuh th' fine p'int, thar's several things to consider.

"First, thar's strikin' power; that's the weight of th' bullet times th' speed or velocity. That's a mighty important p'int, 'spec'ly in huntin' big game, 'cause that's what knocks 'em right down in thar tracks, 'stead of lettin' 'em run a bit. It shocks or paralyzes 'em. In this respect, Betsy's a mighty good gun, 'cause th' bullet weighs 550 grains, ag'in eround 200 or less fer up-to-date rifles, even if Betsy's bullet don't travel quite so fast.

"The next thing is velocity. Now, some rifles throw a bullet with mighty good velocity at close range, but they don't hold it so well as others. That depends on several things, but principally on th' weight of th' bullet an' th' calibre—with th' same powder charge, o' course. Other things being eq'el, a bullet o' large calibre don't have sich good velocity as a smaller one—'espec'ly at long range, 'cause it offers more air resistance. The weight works out erbout th' same way, 'cause th' law o' gravity is a-pullin' 'er down to 'arth all th' time, an' th' heavier th' bullet th' harder th' pull.

"Penetration's another thing to figger on, an' penetration at different ranges, too. That depends on several things, jest th' same as all th' rest o' this figgerin', but th' principal factors air th' weight, calibre, an' hardness; 'cause th' more a bullet batters, th' less it penetrates, but th' more it batters, th' more it *shocks*; so thar yuh have it.

"Now, a very important thing—'spec'ly in ac'rate long-range shootin'—is what th' scientific fellers call trajectory. That's th' drop o' th' bullet at any range. No bullet travels in a straight line; th' law o' gravity starts workin' on 'er as soon as she leaves th' muzzle, an'—as I said afore—the heavier th' bullet, th' greater th' pull an' th' drop. An' th' farther th' bullet travels, th' faster she drops, 'cause th' force of th' powder keeps a-gettin' less an' less as she travels, an' gravity keeps a-pullin' all th' time. That's why yuh have to elevate yore sights fer long-range shootin'. Here's whar poor ol' Betsy don't show up so well as these here modern rifles—as you fellers call 'em, 'cause 'er bullet weighs a powerful sight more'n yore bullet. But jest fer that very reason, she's got



mighty strikin' an' stoppin' power, an' she kin kill mighty dead, jest as fer as yuh kin see th' game, ef yuh know how to raise yore sights—an' I've had that all figgered out long ergo.

"Th' shape of th' bullet's got somepin' to do with all this, too, but it mebbe ain't quite so important as th' other things I mentioned. An' yuh must remember, fellers, that all this figgerin's got to be done with th' same powder charge, 'cause otherwise yore all balled up.

"Now thar's a whale of a difference in powder; 'spec'ly between black powder an' this newfangled smokeless powder. Th' smokeless is a whole lot more powerful'n black powder, 'cause it burns faster. Th' faster a powder burns—or th' more sudden it explodes, which is th' same thing—th' shorter bar-r-el an' th' smaller calibre yuh kin use it in, an' git th' same power behind th' bullet. That's why th' bar-r-els keep gittin' shorter an' th' calibre smaller, while th' velocity is higher, th' bullet lighter, an' th' powder charge smaller.

"But these here short bar-r-els don't help *accuracy*; that works jest th' other way 'round. As I said afore, a long bar-r-el balances better, an' yuh kin hold it stiddier, an' it throws a bullet truer; 'cause th' riflin' is what gives a bullet th' revolv'in' motion an' keeps its head p'inted in th' right direction, so it don't turn end fer end; an' th' longer th' riflin', th' better th' effect. Another reason why I like a long bar-r-el is that th' farther apart yore sights air, th' more ac-rately yuh kin aim. *Don't fergit that.*

"An' speakin' of riflin', Betsy's got what they call a 'gain twist', meanin' that th' nearer to her muzzle yuh git, th' more pitch or twist her riflin' has. That helps th' ol' hussy a whole lot, 'cause th' bullet starts a-twirlin' near th' britch, an' as it gits out near th' muzzle th' riflin's give it a *powerful* twist. Now, ef th' riflin's have too much twist—'spec'ly near th' britch—th' bullet would jump over 'em, an' then yuh wouldn't git no good results at tall.

"So yuh see, when a feller asks: 'What gun shoots th' hardest?' yore askin' a mouthful."

"Did you ever use a telescope sight?" asked an interested listener.

"Sartin. I got one at home, an' she's a dandy. Thar th' only thing fer fine shootin', an' 'spec'ly long-range shootin'. They not only bring th' target right up to yuh, like, so yuh kin see a powerful sight better, but you'd be s'prised how they show up yore bobblin' 'round when yuh try tuh git th' cross harrs on th' spot. But they ain't so practical fer huntin' as fer target shootin', 'cause th' light ain't allus right, an' yore game is sometimes movin' an' yuh wanta shoot quick, an' th' telescope is sometimes a nuisance—'spec'ly in th' brush. But th' principal reason is that yuh don't need 'em so much, huntin'. In th' mountains most of yore game is within a hundred yards, an' very often closer, so it don't pay a feller to pack 'round a telescope on his rifle."

"That's an interesting story, old-timer," said Glenn, who during the recital had appeared from the turkey end of the range, "but you certainly raised hell with our turkey shoot. Everything was goin' fine till you showed up with that damned old cannon. Not satisfied with knockin' hell out of our turkeys, you've made all the boys forget about shootin'."

"Look a-here, son, you've got me an' my pard sized up all wrong. We'd be as low-down as a rattlesnake's belly—an' that's gittin' right down to 'arth—ef we didn't have some consideration fer th' other feller. Yore pard's got forty dollars o' my pard's money what was up on my shootin', an' I'll bet Betsy ag'in one o' them popguns he's been figgerin' all th' time to give it to you boys to kinda squarr up fer th' damage we done yuh."

(Dear old Jim! Making as free with my money as with his own. That was the most conclusive proof of his regard. How well I knew that all he possessed was mine for the asking.)

"Yes," I lied, "he's right."

"Another thing," said Jim. "If you boys have some turkeys left over from this here shoot, jest take 'em to my pard's dad an' he'll prob'ly buy 'em, 'cause he's workin' about three hundred men in his sawmill, an' he's prob'ly figgerin' on givin' 'em a Thanksgiving dinner, 'spec'ly ef yuh tell 'im erbout this here turkey shoot, 'cause he's a purty good rifle shot hisself."

"You might as well take the big turkey," said Glenn, "because none of these fellows will shoot against you."

"No, son, I ain't figgerin' to shoot off fer th' big feller. I'm gonna let my pard have my turn. He's jest a young feller an' he ain't up to snuff yit, so that'll kinda even things up for him havin' Betsy; an' jest to give you boys a' open-an'-shut ag'in him, I'm gonna stand him back ten yards. That's a mighty big advantage in close shootin' at fifty yards."

As I was about to "focus on th' spot", as Jim expressed it, he rushed up to me, showing the only excitement, so far, during the proceeding.

"Jumpin' bob-cats! I plumb fergot to screw down that thar peep-sight! Ef them tenderfeet an' greenhorns had got away with yuh, I never would 'a' fergive myself! Why, Betsy'd shoot six inches high at sixty yards, the way she's set."

As we sailed back to town in the buggy behind "Nip" and "Tuck"—a spanking, matched pair of black trotters, my father's pride (autos being both rare and uncertain in that day), accompanied by a small boy—Jim's recently acquired but staunch friend and ardent admirer, Jim apologized:

"Pardner, I shore ax yore forgiveness fer that insultin' remark I made erbout yore shootin'. Yuh see, I was a-skeered them tenderfeet would shy off yuh on account o' yuh havin' Betsy, an' I was so sure of yuh both, I jest couldn't help givin' 'em that extry ten yards to make 'em come on—an' how them damn fools *did* come! Goin' up ag'in ol' Betsy! Hell! I been figgerin' how we'll divide up them turkeys. You take th' big one 'cause it's yores."

"I'll do it, Jim, if you'll eat Thanksgiving dinner with us."

"Thank yuh, kindly, I'll do so. Then we'll give one to old Sam, an' I'll take one, an' that leaves two."

"Son," (addressing the small boy) "do you know of a couple o' widdier wimmin'?"

"Yes, sir!"

"Then we'll give each of 'em a turk fer Thanksgiving'."

We drove to the places indicated by the boy, and bestowed the turkeys.

"Now, son, we'll take yuh home, fer we got a thirty-mile drive ahead of us. Whar do yuh live?"

"In a little shack over that way," said the boy, pointing.

"How come that thar last widdier lived upstairs over that thar saloon?"

"'Cause she owns the buildin', an' she owns that whole row of buildin's where the saloons are; and you see that big house over there? Well, she owns that, too, only she's too mean an' stingy to live in it. She rents it out. She's old Pete Kline-schmidt's widdier, what used to own the brew'ry. She's worth more money than any one else in town."

"Sufferin' sidewinders! An' to think we give *her* a turkey! Well, son, here's four bits to buy candy with. Yo're a good boy."

"Thank you. I'll give it to Mother to buy grub with. You see, we're awful poor since Dad got hurt in the woods last year. He can't work, so Ma has to take in sewin' an' washin', an' I deliver papers."

"Scratchin' tarantulers!" shouted Jim. "An' I only got eight dollars an' six bits on me, 'sides that cur'us-shaped nugget I been savin' up."

He turned to me. "Pardner, how much have *you* got? We'll all have to eat venison, Thanksgiving'!"

"Son, why in hell didn't yuh say that *afore*?"

"'Cause you ast for widders," replied the boy.

The Sportsman's Camera

By MAURICE KELLERMAN

PART II

IN A previous article I built up a case for the miniature camera as against all the rest of the cameras available and adaptable to the sportsman's needs. This time I'm "sticking my neck out" just as far as before, but in defense of "the rest" . . . and you will be the judge.

The sportsman not favoring the miniature type of outfit still has a whole army of cameras to select from. He is not restricted to one tiny outfit which must do all the jobs. He has folding hand cameras, large and small—any size you like to name, making pictures from $1\frac{5}{8}'' \times 2\frac{1}{4}''$ up to post-card and $4'' \times 5''$ sizes. There are countless makes, American and foreign, running in price from \$1.50 up to a couple of hundred dollars . . . And there are some beautiful outfits on the market today! The manufacturers are not allowing the "miniature" avalanche to sweep the field clean.

Besides the folding hand camera, the sportsman has a further wide choice in equipment which will do some jobs better than any other type of outfit. There is the Reflex camera such as the little Rolleiflex which makes 11 pictures $2\frac{1}{4}'' \times 2\frac{1}{4}''$ on a roll. There is the larger Miroflex, and the Graflex which has been a breadwinner for hundreds of Press photographers covering athletics and race meets for the past quarter-century. And it still ranks top notch not only for sports, but for outdoor and child portraits.

Another kind of camera used for years and still in use by the Press because of its almost universal adaptability, is the combination hand-and-stand camera, such as the Eastman Graphic and the Zeiss Jewel. Such outfits can be used on a tripod for making beautiful landscape compositions. Due to the curtain focal-plane shutter of the Graphic, when used in the hand with a direct-vision finder, speed pictures of running game or fast-moving sports may be made with assurance of "stopping" the action.

Going back to the question of negative development referred to in the article on miniature outfits, the man who uses one of the "other" types of camera may have his films developed via the drug store with reasonable assurance of sufficiently clean work. The smallest picture he will make measures $1\frac{5}{8}'' \times 2\frac{1}{2}''$; about four times the area of the miniature. This is already something to look at and see, when presented in a contact print. Then if an enlargement, even up to $11'' \times 14''$, is wanted from some favorite picture, chances are that the outside job of developing will have been dust-free enough to avoid bad blemishes. If on the other hand the dark-room work is all done at home, the problem of "hospital cleanliness" is much simplified and surer in resulting perfect prints, since we begin with a negative so much larger than the miniature.

The small folding cameras giving the sportsman 8 or 16 exposures on a roll are really marvels of ingenuity, compactness, and precision manufacture. The lenses on even the cheapest of these "vest-pocket" outfits are excellent and allow of splendid enlargements. In this type you can get a smaller and lighter camera giving a larger picture than any of the movie-film miniatures.

By selecting a camera giving 16 exposures on a roll of $2\frac{1}{2}''$ width, each picture will cost less than 2 cents, the same price as miniature, and you get a picture large enough to make a usable contact print.

I must admit to being extremely partial to this type and size of instrument, and I have used several of them on my travels during the last five years. I have sold many hundreds of $8'' \times 10''$

enlargements for commercial use and article illustration, all made from the small $1\frac{5}{8}'' \times 2\frac{1}{2}''$ negatives.

I never go hunting without one of these compact and efficient little outfits, although I may leave all other photographic equipment at home. Woodchucking or deer hunting, it's all one. There is always something to snap on these trips that justifies the carrying of the little camera.

My wife, who is a portrait photographer, always totes a small folding camera in the field. She prefers the $2\frac{1}{4}'' \times 3\frac{1}{4}''$ picture, as the resulting contact prints are still easier to view than the size I use. We worked out this combination of cameras because each could have the size preferred, and only one size of roll film was necessary to carry. One camera gives eight pictures per roll, and the other divides the same roll into sixteen pictures.

There is an objection raised by some to the small folding camera, and that is its inability to adapt long-focus lenses. Granted, but we have two alternatives for achieving the same ultimate print result. We can use a supplementary lens, which is simply a little glass ground to change the focal length of the lens in front of which it is screwed. The well-known Kodak portrait attachment is one of these supplementary lenses. The particular glass used for "bringing far objects near" will make a larger image of the big buck across the river than the original camera lens alone would. And this is just what the long-focus lens of the miniature camera does.

The other method in matching results with the long-focus enthusiast is by enlargement of the big buck's image from the original negative. The miniaturist makes his picture of the big buck with a four-inch "long-focus" lens on a tiny film. You make your picture of the same big buck with a camera using a four-inch lens as standard equipment. Your whole picture may measure $2\frac{1}{4}'' \times 3\frac{1}{4}''$, and will include a lot more scenery surrounding the big buck, but the actual image of the animal will measure exactly the same size as the miniaturist's because both cameras used four-inch lenses and made the picture from the same spot.

For the sportsman who travels by car, trailer, or boat, the reflecting type of camera is a grand outfit. I am thinking particularly of the cameras making $3\frac{1}{4}'' \times 4\frac{1}{4}''$ pictures. This man whose gear is toted for him is not troubled by the problem of a little more weight or bulk, and he may use cut film in magazines carrying 12 exposures, or film-pack. It is no trick to develop films in the traveling home, and if two or three exposures have been made and immediate development is required, these exposed negatives may be taken from the magazine and rushed through the little developing tank without wasting any unexposed film, as would be the case with roll film.

Some of the reflecting cameras, such as the Graflex, are eminently suited for using long-focus of telephoto lenses.

The sportsman preferring the larger folding cameras has a wide choice of makes in $3\frac{1}{4}'' \times 4\frac{1}{4}''$, post card, or $4'' \times 5''$ sizes using film pack. This type of camera also allows one to make good close-up pictures of extreme sharpness and depth of definition. To do this, the camera is used on a tripod, the image focussed visually on the ground glass, and the lens then stopped down to get the required depth of focus or sharpness. Cameras of this type generally have a long bellows for this close-up work, but as they also have a direct-vision finder and a focussing scale marked on the lens mount or on the camera bed, they can also be used for all snapshot work in the hand.

(Continued on page 36)

Small Bore Ranking for 1937

IN 1937 forty-one N. R. A. Registered Small-Bore Rifle Tournaments were conducted, which had a total registration of almost five thousand competitors. The 1937 National Ranking list on the opposite page was compiled from these competitors, and through the Registered Tournament plan of the N. R. A., shooters from the East Coast to the West were, for the second time, able to compete for places.

Out of the top ranking thirty small-bore riflemen for 1936 only seven were able to repeat this year. Of these seven, four were members of the Pershing Trophy Team that spent the greater part of the competitive season in England taking another "crack" at the British Team in a shoulder-to-shoulder match. Although our team lost this match by the scant margin of two points, they did extremely well in the individual events open to them at the English Tournament. The top five places in the Grand Aggregate went to members of the U. S. Team—Summerall taking first. Besides this, Craven won the Ramsey and Westley Richards Challenge Cups, and Lambert won the Vickers Challenge Shield.

Three of the team, Woodring, Schweitzer and Carlson, later journeyed to Finland, where they competed in the International Small-Bore Rifle Matches. These three, together with Mrs. Woodring, who was outranked for first place at Bisley in the Ladies' Competitions, and John Adams won the prone five-man team match at 50-meters. Unfortunately, our boys were outranked for first place in several of the individual events.

Bill Woodring's first place position on the 1937 ranking list comes, we are sure, as no great surprise to anyone. While somewhat erratic in the St. Petersburg Matches, where he started the outdoor season, he won the 50-meter any-sight match and finished well up in several others. Finding his stride in May, he won four matches at the Missouri State Tournament, besides finishing second, third, and fourth in three others. On his return from foreign wars, Bill turned up at Camp Perry to win the Critchfield Trophy, Dewar Medalist and 50-Meter Matches, besides taking second in two events and third in two. Bill is never far from the top, and consistent shooting is the stuff it takes to win aggregates and high national ranking positions.

W. B. Woodring



Willis Kenyon was a consistent shooter from the time he competed in the Muscatine, Iowa, Tournament last June until he finished the season at Camp Perry. While not a spectacular winner at any time, always the name "Kenyon, Willis E.," seems to find a place well towards the top of Official Bulletins at tournaments he attends.

Doctor Gardner, the rambling medico, our third place man for 1937, like Woodring, was a member of the Pershing Trophy Team, having won a place in the team tryouts last spring by placing seventeenth on the list of leading Dewar Course marksmen for 1936. At Bisley, Doctor Gardner scored 399 x 400 in the big match, which was equaled only by Israelson, of the U. S. Team, and Walker, of the British Team. Due to the Bisley trip, Doctor Gardner took "time out" from his practice only long enough to fire at Perry, where, among other things, he finished second to Woodring in the Critchfield Trophy Match. He won the Peters Trophy 200-Yard Match and placed well up all the way through the small-bore program.

Another Bill, this time Bill Patriquin, takes fourth place on the list. Patriquin was one of the most active small bore shooters last season, taking part in thirty-six registered events at six different tournaments. The Mountain State Tournament Grand Aggregate was won by Bill, who also placed third in like events at the Zeppelin and Fort Harmar affairs. Patriquin certainly earned his win at the Mountain State Matches, as he drove all night to reach Fairmont, West Virginia, in time to fire the first event, and then drove back to his home the night after the tournament closed. Along came Camp Perry time, where Bill drew first blood by winning the U. S. Trophy Match against 381 other rabid riflemen. All through the National Matches Bill was "right up among them," as the saying goes, and his showing there did much to earn his berth of fourth place.

H. D. Allyn of Springfield, Massachusetts, covered three of New England's important tournaments, and after a mediocre start at Meriden, Connecticut, he never faltered. In the other two major tournaments he competed in preceding Camp Perry, his poorest showing was a ninth

(Continued on page 36)

Willis Kenyon



William Patriquin



Dr. Russell Gardner



1937 Small Bore Ranking List

No.	Name	Address	Comp. Faced	Rank
1	Woodring, W. B.	Illinois	2946	942
2	Kenyon, W. E.	Iowa	1585	936
3	Gardner, Dr. Russell	Ohio	2489	915
4	Patriquin, Wm.	Pennsylvania	4017	903
5	Allyn, H. D.	Massachusetts	2839	895
6	Hamby, Chas.	Georgia	2972	893
7	Brown, Edwards	Illinois	3122	887
8	Crockett, O. E.	Indiana	3405	878
9	Grosskopf, Marshall	Wisconsin	3472	873
10	Isaelson, Merle	Ohio	1412	871
11	Selby, Bernard	Ohio	905	867
12	Nobbs, Howard	New York	769	858
13	Kuhn, F. O.	Connecticut	2923	858
14	Canfield, V. Z.	Ohio	2115	845
15	Tiefenbrunn, V. J.	Missouri	5404	844
16	Ney, Arnold J.	Wisconsin	1016	843
17	Hamley, E. C., Jr.	California	745	842
18	Recker, Kenneth	Florida	2918	836
19	Pipes, S. E.	Louisiana	468	832
20	Yeasley, A. J.	Ohio	2723	830
21	Breuler, Wm. O.	Connecticut	3307	830
22	Scarborough, W. D.	Ohio	1981	829
23	Lewis, T. M.	New York	2706	828
24	Samson, T. P.	New Jersey	2559	825
25	Schweitzer, Wm. P.	New Jersey	3369	821
26	Davis, J. L.	Pennsylvania	3446	816
27	Triggs, Ransford D.	New Jersey	3467	815
28	Cole, John W.	Massachusetts	757	813
29	Hansch, Wes.	Wisconsin	3606	812
30	Westfall, Claude	Ohio	3718	812
31	Beck, H. W.	North Carolina	1513	807
32	Herrington, L. A.	Ohio	2086	803
33	Moor, E. N., Jr.	Michigan	2661	802
34	Tekulsky, Samuel	New York	3142	801
35	Bulgrin, Lew.	Wisconsin	3290	797
36	Heins, M. M.	California	2003	7947
37	Pope, R. C.	Texas	1578	7944
38	Johnson, Eric	Connecticut	3720	7937
39	Marton, J. R.	Texas	556	793
40	Kelly, Dorothea	Ohio	809	789
41	Mercier, Earl	Illinois	3385	788
42	Randle, Thurman	Texas	3182	786
43	Johansen, Fred	Illinois	3005	785
44	Whipple, C. C.	Pennsylvania	2757	783
45	Worthen, F. A.	Ohio	2638	770
46	Salkeld, Alan B.	Pennsylvania	1496	7779
47	Bashline, D. A.	Ohio	3433	77774
48	Potter, H. E.	Illinois	1948	77772
49	Vincent, C. H.	Michigan	1184	775
50	Berlin, C. H.	Pennsylvania	2453	769
51	Greathouse, McLeod A.	Texas	860	768
52	Conrad, C. W.	Missouri	3136	763
53	Crowley, John J.	New Hampshire	2888	758
54	Holm, Ted J.	Iowa	2351	7488
55	Pierce, E. H.	Illinois	2941	748
56	Spillner, Henry	New Jersey	2253	7439
57	Wilson, W. L.	Michigan	1037	741
58	Marckmann, Otto C.	California	597	732
59	Barrett, L. C.	Ohio	2916	7312
60	Louden, R. E.	Pennsylvania	3406	729
61	Lippencott, J. C.	New Jersey	3109	728
62	Klotz, Milton	Ohio	2955	721
63	Wark, John	New York	2921	716
64	Paffe, F. J.	Florida	2712	715
65	Lacy, Jack	Connecticut	2753	713
66	Hellwig, Elsie	Connecticut	2695	712
67	Womack, W. H.	Louisiana	1248	711
68	Menzer, E. P.	Georgia	2644	710
69	McCoy, Minnie	Ohio	4161	707
70	Lord, E. L.	Illinois	2718	706
71	Says, William A.	Ohio	2932	702
72	Nielsen, H. C.	Wisconsin	2053	698
73	Ancelin, R.	Texas	636	698
74	Arnold, Tom G.	Maryland	3107	697
75	Bond, Sam.	Ohio	3620	693
76	Heintz, Sam.	Michigan	1750	692
77	Jacobs, H. H.	Ohio	3272	690
78	Robbins, Wallace L.	California	533	688
79	Reston, Rodney J.	New York	2684	687
80	Freeland, Al.	Illinois	3132	687
81	Eakins, Fred O.	Ohio	2626	685
82	Anderson, Geo. H.	Ohio	2856	684
83	Moore, S. W.	New Jersey	2834	671
84	Franz, Arvel	Illinois	3136	667
85	Kennedy, W. C.	New Jersey	2841	659
86	Hewson, Geo.	Ohio	1516	658
87	Hoppe, Frank C.	Pennsylvania	2984	658
88	Aust, R. W.	Texas	723	653
89	Bartlett, Mrs. L. P.	Texas	2740	651
90	Baughman, R. E.	Ohio	1829	643
91	Swanson, Edwin	Wisconsin	2329	641
92	Deyerle, H. P.	Virginia	2757	638
93	Bennett, W. S.	Texas	351	634
94	Handewerk, Earl E.	Pennsylvania	3212	632
95	Oakey, W. H.	North Carolina	2920	632
96	Kemp, L. E.	Pennsylvania	381	631
97	Charlton, T. T.	Maryland	1173	631
98	Frost, George E., Jr.	Illinois	2421	631
99	Moore, V. A.	Texas	723	627

NOTE: The ranking positions of the small-bore shooters for 1937, as shown on this page, were determined by the method approved by the N. R. A. Executive Committee at its 1937 annual meeting. Under this plan a record has been kept, showing the position in which every competitor finished in each 40-shot short or mid-range event at all N. R. A. Registered Tournaments. At the end of the year the total number of competitors each shooter defeated was divided by the number of competitors he faced, to give the ranking index figure shown opposite his name. By this ranking method a true picture of the shooter's real ability is shown, as he is penalized for a poor showing at one tournament in the same proportion as he receives credit for winning at another. To be considered for ranking in 1937, it was necessary for all shooters (except members of the Pershing Trophy Team) to compete in at least ten open individual 40-shot short and mid-range matches. One member of the Pershing Team has been given ranking position, although he did not compete in ten such events. This was done as the trip to Bisley kept him from attending tournaments he otherwise would have competed in, and the showing made at the National Matches warranted this consideration. Both metallic and telescope-sight events have been included for ranking purposes, but no 200-yard scores were taken into account for this list. In a later issue of THE AMERICAN RIFLEMAN a 200-yard ranking list will be published.—Ed.

No.	Name	Address	Comp. Faced	Rank
128	Powell, H.	New York	2757	598
129	Kennedy, S.	Pennsylvania	3362	593
130	Mason, Lew W.	Illinois	2635	591
131	Gallahue, J. T.	Pennsylvania	3138	588
132	Knight, A. L.	Texas	536	579
133	Blakeslee, G. D.	Pennsylvania	570	575
134	Rider, Craig	Pennsylvania	4106	573
135	Wince, F. C.	Delaware	2226	572
136	Tarr, Allison	Pennsylvania	3005	572
137	Raven, Jesse L.	Texas	1168	568
138	Page, Linwood E.	Connecticut	426	568
139	Bryan, W. T.	Georgia	291	562
140	Thill, A. J.	District of Columbia	3109	557
141	Bickertstaff, Clifford	Pennsylvania	3758	548
142	Newton, Leonard C.	N. Hampshire	563	548
143	Chidsey, Francis A.	Pennsylvania	3793	544
144	Bogar, N. J.	North Carolina	1760	543
145	McNabb, J. D.	Virginia	3674	542
146	Dillon, C. O.	Illinois	2493	533
147	Johannes, Richard	Pennsylvania	2328	523
148	Souter, Capt. Cortez	Iowa	2149	521
149	Ingersoll, T.	Michigan	2099	517
150	Van Sleen, H. M.	North Carolina	464	515
151	Lauritsen, Andrew	Connecticut	2439	515
152	Wibbitt, Richard J.	New Jersey	2117	513
153	Woodworth, C. L.	Ohio	2480	513
154	Griffith, J. A.	West Virginia	381	512
155	Craemer, Harold S.	New Jersey	2412	507
156	Altimus, Myles E., Jr.	Pennsylvania	1318	503
157	Campbell, John	Ohio	3486	502
158	Bradley, E. W.	Pennsylvania	2586	501
159	Cooper, M. A., Sr.	Georgia	560	501
160	Magen, Chas. F.	Tennessee	232	500
161	Smith, C. R.	Texas	532	496
162	Miller, John R. E.	Wisconsin	3010	492
163	Browning, A. J.	Georgia	1519	492
164	Cross, E.	Texas	420	491
165	Robertson, Paul W.	Georgia	483	487
166	Brown, Price	Illinois	2537	486
167	Latta, R. J., Jr.	New Jersey	2592	486
168	Cook, W. D.	Michigan	1885	486
169	Hankey, H. H.	Texas	351	484
170	Meiser, H. W.	Ohio	1891	482
171	Friedman, Fred	Michigan	2632	479
172	Warnes, Everett	Illinois	780	479
173	Olden, John H.	Georgia	232	478
174	Eastepe, Marion L.	Pennsylvania	3391	477
175	Drake, Hal	Georgia	483	475
176	Oswald, Floyd T.	Pennsylvania	2860	473
177	Knowles, Edwin F.	California	611	471
178	Bartlett, Leroy P.	Texas	1309	471
179	Cartwright, Harold	Missouri	2479	471
180	Hawcock, Emory	Illinois	3479	468
181	Webster, Alex	Pennsylvania	3072	467
182	Munson, A. E., Jr.	New York	2236	466
183	Pope, E. G.	Texas	686	458
184	Kobler, M. L.	Illinois	3225	457
185	Darkow, Arthur L.	Ohio	2333	452
186	Davis, Hugh	Ohio	485	448
187	Borup, C. S.	Texas	2054	444
188	Moore, L. F.	New Hampshire	3518	444
189	Anson, Flossie	Ohio	268	439
190	Bryan, Mrs. W. T.	Georgia	485	429
191	Robinson, Frank H.	Texas	2771	423
192	Ott, Bogle D.	Wisconsin	255	417
193	Watson, D. E.	Oklahoma	351	411
194	Fehlis, Bob	Texas	843	405
195	Amos, A. S.	Ohio	2583	403
196	Neubinger, Reid	Pennsylvania	769	395
197	Lewis, J. Ransom	New York	351	393
198	Roark, R. H.	Texas	899	390
199	Barr, J. D.	Illinois	3384	388
200	MacMullen, A. B.	Pennsylvania	1961	386
201	Hunt, Norman C.	Michigan	3078	385
202	Latta, R. Eugene	New Jersey	623	384
203	Miller, J. E.	Ohio	2519	363
204	Hamilton, W. P.	Pennsylvania	1455	358
205	Ross, William	Michigan	448	353
206	Robinson, Mrs. Marie	Texas	1731	353
207	Floor, Milton C.	Ohio	1635	350
208	Stanton, Edward	Michigan	3190	346
209	Griffith, L. W.	Pennsylvania	2406	341
210	Hodges, W. E.	Georgia	1238	336
211	Hunt, Clayton	Illinois	2809	325
212	Bryson, Frank E.	Florida	2534	319
213	Stratton, T. K.	Pennsylvania	529	319
214	McLean, E. M.	Pennsylvania	806	316
215	Aber, Paul	Pennsylvania	3115	316
216	Griffith, H. D.	Pennsylvania	2537	315
217	Brown, Severn	Illinois	3080	312
218	Rodman, James	Michigan	3010	297
219	Pivoda, Ida M.	Illinois	1933	278
220	Cook, Russell	Porto Rico	2936	271
221	Seager, R. L.	Pennsylvania	1831	208
222	Lawton, Edward	Pennsylvania	2017	158
223	Megown, Virgil E.	Missouri	1875	111
224	Carpenter, M. E.	Vermont	1638	104
225	Ford, A. C.	Ohio	2280	078
226	Scott, Carl F.	Ohio		

FITTING A FRONT SIGHT

By LARRY BOUCHER

AN EASY and very secure way to put a Springfield front sight on some other barrel—for example a Krag, is as follows:

Remove the bolt and put into the chamber a fired case from which the primer has been removed. Put the Springfield front-sight assembly on the barrel just where you want it, and set the rear sight

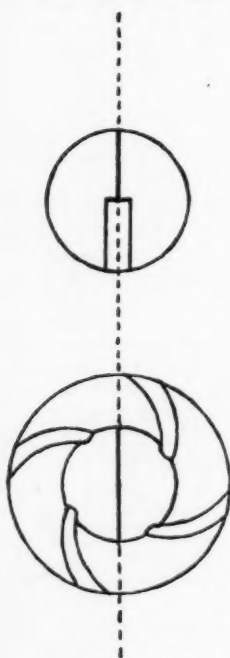


Fig. 1

at zero windage. Find a vertical straight line such as a flagstaff, house corner, etc., not less than 100 yards away. Lay the gun exactly plumb, and, sighting through the bore, use the primer hole for a peep

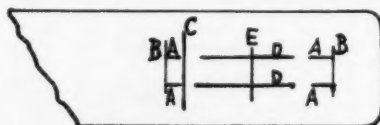


Fig. 2

and the muzzle for an aperture. Set the gun so that the vertical line is exactly in the center of the bore; then, looking through the rear sight, tap the front sight one way or the other until the vertical line is exactly in the center of the front-sight blade. When this has been accomplished the bore and sights will look something like Figure 1.

Now, being careful not to move the front sight, take a darning needle and scribe four lines on the barrel at the ends of the keyway in the sight, as at AA and AA in Figure 2.

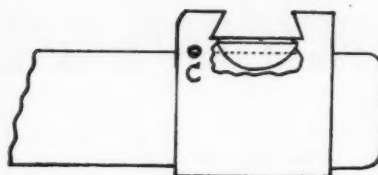


Fig. 3

Next, scribe a line across each end of the keyway, as at BB. Also mark the barrel through the ends of the pin hole in each side of the sight base, as at C, Figure 3.

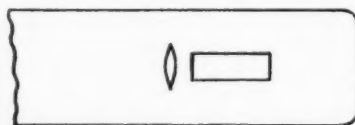


Fig. 4

Now remove the sight, and, using a straight-edge, scribe fine lines DD between lines AA and AA in Figure 2. Draw a line across the barrel between the marks CC, and scribe a line E half way between B and B. Take the gun to a machine shop and have a half-moon keyway cut in the barrel, the center coming at the intersection of lines DD and E. The keyway must be exactly the same in width as the space between lines DD, and $\frac{1}{4}$ -inch deep. Have the shop supply a half-moon key to fit the keyway exactly. This work should cost about \$.75.

Next, file a notch on line C, just deep enough to receive the pin. You now have a notch and keyway in the barrel as in Figure 4. Set the key in place, and drive the sight on until the hole C lines up with the notch. Drive a tight-fitting pin into the hole (a shingle nail will fit), and the job is done.

I did this job on my Krag, and it shot only $\frac{3}{4}$ -inch off at 75 yards, and for rigidity and simplicity this arrangement is second only to a Government arsenal job.

FIREARMS AND TEXAS TOWNS

By W. E. DANCY

IN looking over a list of names of Texas towns, I was struck by "Pistol Hill", "Gunsight", and "Pointblank", which evidently were derived from firearms. Interested, I found many other names, which, of other origin, aroused a train of associations for anyone who, like myself, is interested in these things.

Of the modern arms-makers we find "Winchester", "Stevens", "Marlin", "Parker", "Smith" and "Wesson", and "Springfield"; while from abroad there are "Scott", "Merkel", "Holland", and "Ross". Of the older arms there are "Spencer",

"John", "Manton", "Henry", and "Gatling". There is even a "Wheelock".

Sights and their makers have the best of it, however, for in addition to "Gunsight" mentioned above, which is a rather general term, we have specific makers, such as "Lyman", "King", "Watson", and "Weaver"; beside which we have "Stith" and "Tilden" of telescope sight-mount fame. With the "Globe", "Call", "Post", "Hood", "Iron", and "Rear" varieties we are well provided for.

Beside "Winchester", noted above, the ammunition business seems to be left to "Peters", there being available the "Swift" and "Roberts" among others. In hand-loading we find familiar names and terms, such as "Dupont", "Sisk", "Ball", and "Graphite". For making bullet moulds there is the indispensable "Cherry". There is, alas, also an occasional "Accident".

Even in this era of non-corrosive primers, I find there are "Pitts", while the gunsmith is provided with "Files", "Tap" and "Dies", and "Wood" and "Woodstock." The wood seems to be "Maple" and "Myrtle"; also "Ebony" (for forend tips). "Spring", "Spur", "Clip", "Drop", "Crown", "Land", and "Pitch" also concern the gunmaker, mainly. For the flint-lock arms there is "Flint". There is also a "Cap" and "Ball".

And what of the wild game? Judging from the names of the towns, there are: "Fauna", "Antelope", "Badger", "Beaver", "Buck", "Buffalo", "Crow", "Curlew", "Dove", "Eagle", "Fox", "Owl", "Peacock", "Pheasant", "Pigeon", "Quail", "Sable", "Turkey", and (most improbable) "Tiger".

What other state is so well supplied with both game and guns, if only from the standpoint of an Atlas?

A BUTTPLATE KINK

By EARL J. ROBERTS

TO MAKE a simple non-slip buttplate, which I have found useful, procure a sole repair kit from the ten-cent store. It consists of a pair of rubber soles and a tube of rubber cement. Look them over at the store: you may be able to find a pair of soles with a checkered design or some other of equally pleasing appearance. Cut one of the soles to match the buttplate of your rifle. Coat the original buttplate with the rubber cement, and allow it to dry for about five minutes. Apply one more coat to the original buttplate, and one to the rubber buttplate, and again allow the cement to dry a bit. Then press the rubber buttplate firmly on the gun, and allow the cement to harden for at least four hours, before using. This buttplate will stand at least a year of hard use if oil is not allowed to reach it. Mine is still in good condition after three years of moderate use.

THE AMERICAN RIFLEMAN

A Junior Rifleman Speaks

By WILLIAM CHARLES LIGHT

HAVING often noticed in *THE AMERICAN RIFLEMAN* the lack of articles written expressly for the Junior shooter, I decided to take up the cudgel—or rather the pen—for the thousands and thousands of Junior marksmen who are readers of this magazine. In qualifications, in actual competition with seniors, in the matter of safety, and in club organization, these young riflemen have made such a fine showing that they deserve an article all their own.

The twelve or thirteen-year-old boy who is delighted by the ownership of his first .22 usually starts out by popping away at tin cans, bottles, or any old thing. If he keeps on practicing in this way he may in time become fairly proficient in the use of his rifle. But unless he has the guidance of some older person who knows how to handle a rifle in the correct manner, this boy is some day, perhaps, going to accidentally put a bullet through himself or through one of his friends, thereby giving the newspapers a front-page article preaching against rifles for those under voting age, and giving the grand sport of shooting a black check with those who do not know the true facts of the case. And in time it will be almost impossible to convince these people that it is the boy who has never been trained to handle a gun that causes these sad mishaps—not the boy who belongs to the rifle club downtown.

The Junior Division of The National Rifle Association, by teaching thousands of boys (and girls) the proper use of a gun, is not only opening the road to participation in a fine and character-building sport, but is doing a great deal in preventing gun accidents. A large part of this is done through the medium of Junior clubs organized in scout troops, boys' clubs, Y. M. C. A.'s, etc. Each of these clubs is headed by an adult leader. The N. R. A. Headquarters furnishes these men free of charge with an instructor's training course. If those taking this course show enough interest to answer the questions at the end of each lesson, and send these answers in, if the answers are reasonably correct they are issued instructor's commissions. Juniors taking the course and submitting answers under the same condi-

tions are issued assistant instructor's certificates. This course enables a man with very little knowledge of shooting to become a good instructor, by spending a little of his spare time. He then passes what he has learned on to the members of the club. Club membership in many cases also eliminates the necessity of the boy owning his own gun.

If for some reason club membership is not practicable for a boy, or in case there is no Junior club in his town, he may join as an individual member at the low rate of 25 cents a year; and if he is really interested in shooting, that quarter pays him tremendous dividends. Besides his membership materials, including membership pen, he is given the opportunity to enter any senior individual match. He may also attend the National Matches at Camp Perry, and he may shoot on his home range for a set of attractive medals in the qualification course. By striving to win the complete set of medals, he improves gradually in skill until he can really shoot. And he is interested right from the time he first takes a rifle in his hands, because he has to make a score of only 20 x 50 on a single-bull target at 50 feet to qualify for his first medal. When he has shot ten such targets under the watchful eye of his older witness (who must sign each target), he sends them in. A certificate is issued free upon the completion of each stage.

The matter of what equipment he needs is often misunderstood. I've known boys to give up before they even started, because they didn't have enough money for a twenty or thirty-dollar target rifle and equipment. Far from requiring an expensive gun or elaborate extras, all a boy needs is a cheap four or five-dollar gun, targets, an old rug or mat to lay on, and cartridges. The rifle may even have open sights. In case any reader doubts that it would be possible to do accurate 50-foot shooting with open sights, I can only say

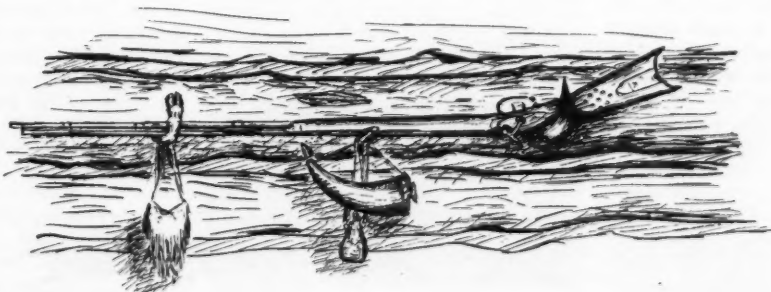
that I base my assumption that it can be done upon the fact that I shot my way through the Junior qualifications to Expert with a four-dollar rifle that had plain open sights. The subject of building the range indoors or out has been covered so often that there is no need to discuss it here. As for what brand of cartridges to use, the only way to find out is to try several kinds, and choose the one with which you get the best results. I have always used shorts in my 50-foot shooting. I bought them ten boxes at a time, and thus effected a considerable saving.

Space here is too limited to describe fully the many things that have been done by Junior clubs and shooters. Many readers will remember the first time a rifle was placed in their hands; will remember seeing young shooters at Camp Perry and other big matches taking their places beside the older and more experienced marksmen. And I am sure that the younger shooters would like to extend their thanks for the great help many of these men have given them.

Shooters have gained a reputation in many parts of the country as being among the squarest men alive. But in many many other places **THEY ARE STILL REGARDED IN NEARLY THE SAME LIGHT AS CRIMINALS.** It is up to all of us shooters to bring to these misinformed persons the true facts. For if we don't, no one else will. And that would mean that in localities such as the one in which I reside, not only will the shooter continue to be thought of as a sort of criminal, but eventually **LAW WILL BE PASSED WHICH WILL MAKE HIM A CRIMINAL IF HE OWNS GUNS OR SHOOT!** The results which may be obtained by being active in informing people in your town, are large. Many of them shot as a boy. Show them your guns, let them get the feel of a fine weapon again. They'll tell others. If you handle the situation in the right manner you will have done a lot

more to help your sport than you will realize for a long time.

The Junior shooters have been doing their part. Let us all remember those words known to every American: "United we stand, divided we fall!"



MORE ABOUT CORK WADS

Editor, THE AMERICAN RIFLEMAN

Dear Sir:

I have read the article "It May Help" by F. R. Krause, in the December issue of *THE RIFLEMAN*, and I think it would not be a very good practice to put cork wads behind the bullets in revolver cartridges. As far as using cork wads behind cast bullets in rifle cartridges is concerned, I think the wads would be pretty well burned up by the powder gases if the reloader ever switched from No. 80 powder to some hotter powder. At best, cork can delay fusion at the base of the bullet for but a short time, and if the bullet is recovered after firing, I'll bet you can see where the base has started to melt, unless the powder charge is held down to where it would hardly bother a bullet without a cork wad or gas check. How about the cork wads blowing to pieces when the cartridges are fired? You know, there are different kinds of cork, some flexible and some hard, while some forms of sheet cork are treated with chemicals that make them extremely brittle. At best I wouldn't want the wads mixed with the powder. I would drop a little glue down on the wad so when I seated the bullet the wad would stick to the bullet. But why not use metal gas checks? They are cheaper and better than cork.

As for using cork wads in revolver and pistol cartridges, that's out. How does anybody know that they will stay put in the big-bores that have heavy recoil? Even if they don't slide down on the powder, they are bound to move a little, and up go your pressures, and maybe the cylinder and a couple of fingers—who can tell? If the bullets are sized so that they are a snug fit in the forward end of the cylinder, and are perfectly round and have perfect bases, what little gas escapes will never cause any leading, provided the bullet has the right amount of lubricant and the gun bore isn't pitted. The bore has just plenty to do with leading when it is pitted. I have done a lot of reloading, and the only time I got leading was when I speeded up the bullet too much in a rifle (.30-'06); then I used a gas-check cup or reduced the powder charge. In a handgun, size the bullet to the right diameter, see that it is perfect, and that it has the right amount of good lubricant and not too stiff a powder charge, and you won't have leading unless the bore is pitted. The proper alloy is also very important. But stay away from wads in pistol and revolver cartridges. EMIL SWATOS.

That .44-77 Colt Rifle

By JOHN SCOFIELD

IN the first issue of *THE AMERICAN RIFLEMAN* for 1938, N. H. Roberts, of "Vacation Echoes" fame, illustrated and described a target rifle of Colt manufacture concerning which no historical data was available. Some information of a general nature is, however, discoverable in this "mystery" arm which may furnish a partial answer to Mr. Roberts' questions.

The basic patent, No. 52,925, was granted to Colonel Hiram Berdan, February 27, 1866. Originally this breech action was designed as a method of altering military muzzle-loading muskets for use with metallic ammunition. Though never adopted by our country, it was presented to both United States and English Ordnance Boards. Before the latter it bested in performance the familiar Snider.

Some years later, through the efforts of General Gorloff and Captain Hunnius, both of the Russian Artillery, and with additional revisions by the original inventor, the improved or "Berdan New System" was perfected. In February, 1868, a contract was made between the Russian Government and the Colt company for the manufacture of 30,000 of these arms, apparently in both rifle and carbine sizes. The contract was completed March 1, 1870. These facts differ somewhat from those given in "A Century of Achievement," published last year by the Colt company, where it is stated that 40,000 were produced during the period 1870-1872.

This arm is interesting as having been the first chambered for a center-fire cartridge with bottle neck and outside (Berdan) primer. The bullet was of .42 caliber, 370 grains in weight, and the powder charge was 78 grains. In a test of the rifle, accuracy is said to have been splendid, all shots at 1200 paces grouping in a rectangle 3 by 1½ feet.

The action of the Berdan rifle was a combination of the principles of the Braendlin-Albini and Chassepot, both of which were in use in Europe at the time. Several varieties or models are recorded: a rifle marked COLT'S PATENT FIRE ARMS MFG. CO., HARTFORD, CT.; one similar though with a different-shaped bolt, and inscribed with Russian characters, and apparently a carbine on this system, made in Russia.

A few facts regarding the inventor may be of interest. Hiram Berdan was Colonel of the famed Berdan's U. S. Sharp-

shooters during the Civil War, but resigned his commission in 1864 to devote his time to the invention of a breech-loader for use by the U. S. military forces. Evidently one at least of these was made during the War, as a Berdan .58-caliber rifle is mentioned as having been tested in November of that year. Though never adopted for use by the United States, the development of the system cost this country \$95,000, which sum was awarded as settlement of a claim by Colonel Berdan that the single-jointed breech-block of the Model 1866 Springfield constituted an infringement of his patent.

All of which leaves us still in the dark as to the history of the *sporting* or *target* model discovered by "Schiff the Gunman." The writer has never seen or heard of such a model, and it seems that a reasonable supposition would be, as Mr. Roberts suggests, that perhaps twenty or twenty-one such deluxe arms were made solely for use by the members of the Colt Rifle Club at the same time that the military arms were produced. Perhaps, even as rifle cranks today, they saw a chance to use an arm not available to any other group of shooters, knew it was accurate, and so had the few in target grade made up especially for themselves. Judging only from photographs, both these "specials" and the standard Russian military rifles appear to be nearly identical, other than stock, stock fittings, trigger guard, etc. The octagonal barrel differs from the round one of the contract arms, though doubtless these barrels were "specials" as well, chambered as they were for the .44-77-470 rather than the .42 Russian C.F. cartridge of the standard arms. Another point that would tend to bolster the theory of their being practically custom jobs made in the Colt factory from military actions, is the presence of the standard military rear sight on Mr. Schiff's rifle, in addition to the adjustable tang sight.

A final word: Mr. Roberts presumes twenty-one of these rifles were made—twenty for the club and one for Colonel Colt. However, Colt died January 10, 1862, many years before the appearance of the rifles. Nevertheless, it is possible that he did, indirectly at least, have a hand in promoting the Russian contract, even though it was not secured until long after his death. In 1856 Colt was presented to the Court of the Russian Emperor, then Alexander II, and the Berdan contract may be traceable to this visit to Russia.



Try *f.* 32 for Better Pistol Shooting

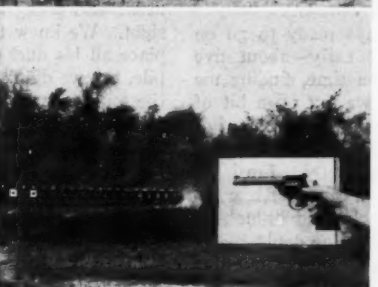
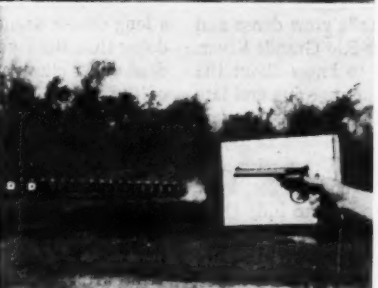
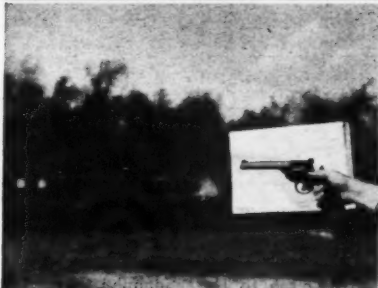
By WALTER F. ROPER

TWO weeks in camp with a couple of camera nuts certainly should do something for a chap, and that "*f.* 32" business is what it did for me. Actually, both of the camera cranks with whom I lived through that broiling-hot weather we had at the 1937 National Matches at Camp Perry, were extra-fine tent mates and expert pistol shots, in addition to being absolutely *coo coo* about cameras. In proof of the pistol-shooting part, all I need say is that one of them was Elliott Jones, and the other good old Ed. Bridgman, President of the Springfield (Massachusetts) Revolver Club.

It's funny how such shooting experts allow the camera bug to bite them. One would think that being extra-good in one sport was enough; but not these chaps. I listened to discussions and arguments regarding everything about cameras, until in self defense I began to try to understand their language, hoping somehow to get a little fun out of it, since I had to listen to it anyway. And I surely did learn something, though I'll bet that neither of those chaps guessed that they were supplying just the information for which we pistol shooters have been waiting for years and years.

All through their lengthy discussions I kept hearing about something they called "*f.*" Sometimes it would be *f.* 2, and sometimes *f.* 4.5 or *f.* 16; while on rare occasions it would be *f.* 32. And because of its rare occurrence, I took a particular interest in *f.* 32. Finally I worked up enough courage to inquire as to the meaning of "*f.* 32," and learned that it meant a very small opening in the diaphragm of a camera through which the light passes on its way to the film; and that with the opening as small as *f.* 32, a camera has practically a universal focus.

Now when I heard that expression "universal focus," I became really interested, for isn't that exactly what we pistol shooters have been trying to get in order that we could see both our sights and the target clearly at the same time? And if something would give a camera that faculty, wasn't it possible to somehow get our eyes working in the same way too? Of course I know you are going to say that sighting through a small peep-hole is old stuff, and in fact it was ancient history when I tried it some 25 years ago. I made my mistake when I didn't stick to it; and indeed few shooters do use the device, because, I imagine, we have all thought of it as just another gadget, and didn't have absolute proof that it was the one and only way to make the sights and the target



stand out clear and sharp simultaneously.

But that *f.* 32 business settled the matter with me, and I was mighty anxious to get home where I could make some actual tests, get the proof, and pass the dope along to fellow pistol-shooters.

According to Jones and Bridgman, the much-mentioned "*f.*" of the camera man is the ratio between the focal length of the lens and the diameter of the opening through which the light passes in going through the lens. Accordingly, *f.* 2 indicates a very large opening which lets a lot of light through, and with it pictures can be taken at very fast speed in very poor light. But *f.* 32, on the other hand, is a mighty small opening, and with it everything at a distance of from infinity up to within a few feet of the camera, is in focus. So little light gets through the small hole that a much longer time is required to take a picture, but that is of no consequence in shooting, for we have plenty of time for aiming.

Several times I tried to get those two camera sharks to tell me what the "*f.*" of the human eye was under ordinary light conditions, but they couldn't be bothered with such trifles. However, I knew that the size of the pupil of the eye automatically changes with the brightness of the light, and that the eye bulges and flattens to change its focal length in an attempt to accommodate itself to conditions; and I figured the thing out roughly about like this: I guessed that the distance from the lens of the eye to the retina upon which the eye-picture is formed, was about $\frac{1}{2}$ -inch, and that the opening (pupil) of the eye under average conditions of light was about $\frac{1}{8}$ -inch. The "*f.*" therefore, would be $\frac{1}{2}$ divided by $\frac{1}{8}$ or 4. That was interesting, because I had in mind using my camera to find out whether there was some "*f.*" setting that would make both the sights and the 50-yard target show up clearly; and my camera has an *f.* 4.5 lens. That meant that I could begin with an opening-ratio similar to that of the eye under ordinary conditions, and see what happened when it was progressively reduced, perhaps finding in the process an opening that would give the universal focus needed.

The pictures tell the rest of the story, and give conclusive proof that the aperture-over-the-eye gadget is worthy of a more important-sounding name; for it is the one and only means of getting both sights and target clear when open sights are employed. In each of the pictures the target is on the butts 50 yards from the shooter, which gives the hardest conditions

(Continued on page 36)



DOWN in the south end of New Mexico, close to the Texas line, a doctor from El Paso had a small duck lake leased. The doctor had heard of me, and expressed a desire to have me shoot with him some day before the season ended. However, the season was growing late, and my doctor friend didn't know whether he could get off or not, so he gave my son a written permit, which was to be shown the caretaker, authorizing myself and a companion to shoot on his lake one day.

It was a small lake in a deep depression, hard by a great drainage ditch such as are common in the Rio Grande Valley. The ditch usually carried a heavy head of water, and it was presumed water from this ditch seeped under ground and kept the lake well filled. The lake contained perhaps ten acres of water, meandering back in arms between the low hills. All about the main body, and back along the reaches, cat-tails grew dense and rank. The pond was some two miles from the Rio Grande River, and all the ducks using this stream seemed to know about the lake. They roosted there, came in early in the morning and late of an evening; also traded back and forth through the day. Hundreds of ducks came in there at times, all kinds of ducks except mergansers. No fish, no fish duck. The doctor had built blinds—just a couple of ordinary dry-goods boxes, large enough to place seats in. No attempt was made to hide these box blinds, probably on the theory that the birds were there every day, while the shooting occurred not oftener than once a week, so the ducks became perfectly accustomed to the boxes, finding them, ordinarily, as harmless as the cat-tails.

Jimmy was my stand-by—the man always ready to go on Sundays. We had planned to start very early—about five o'clock, and Jim was there at my home on time, finding me getting breakfast, which we both ate, and we put up a bit of a lunch before starting. It was a twenty-five-mile drive. For all that, we reached the house of the Mexican caretaker shortly after daybreak, getting him out of bed, apparently. Jim hammered and whooped around until the Mexican came forth, while I remained in the car. The man was grouchy and ill-looking. More than likely he could not read English, but no doubt recognized the doctor's signature and letterhead. Jim could talk Spanish, and explained what the paper meant. The man was

inclined to take possession of the permit, but Jim would not allow that, keeping it for our own protection.

A dog came out and barked at us when we stopped: a sort of Mexican spaniel, red like Buck but with long hair. The spaniel came to the car, barking loudly, with Buck shut in and making just as much fuss in his endeavor to get out. The caretaker never said a word to his dog, and Jim had to watch the beast for fear of being bitten; for this dog, also, showed an inclination to bite. We wasted no time, for ducks could be seen a quarter of a mile ahead, sailing about over the pond and dropping in. Parking the car as close as we could get to the pond, taking care to leave it in sight of the blinds (this Mexican caretaker had the reputation of being "light-fingered"), we filled up with shells, took our guns, and started for the blinds, finding that we would have to make a long detour around the south arm of the lake. While we were doing this, Buck got away, and shortly we saw two or three hundred ducks climb out of the main lake to wing off in the direction of the river. We could have kept the little red dog with us by carrying him, but thought it as well to have him drive the fowl out without scaring them by shooting. We surmised that many of them would come back, in small bunches and continually.

Before we got to the blinds a flock of pintails returned, circled, and saw us, sheering off before coming very close. By dint of shooting we managed to drop two birds, which fell in the water but near the other side of the pond. Buck saw them fall, and went after them, taking his game ashore on the far side as usual, and piling them some place back in the cat-tails out of sight. We knew that in accordance with his custom he would place all his ducks that dropped close to the far shore in that pile, but we didn't mind. It was only a matter of going around the south arm of the lake to get those birds when we were ready to leave. We got into the two adjacent blinds, no more than six feet apart, with comfortable seats where we would be completely hidden by ducking our heads.

While waiting in sheer comfort, we could talk things over in tones too low to be heard by any ducks that might come in. Among other things, Jim mentioned the Mexican caretaker.

"He has a bad reputation among his own people. They claim he will steal, steal anything left loose. Mexicans don't often

do that, though they will lift anything, some of them, left in an unlocked car. That dog which wanted to bite me this morning has something to do with it, they say. That is a smart dog, from all accounts—just as knowing as Buck, and a good deal meaner. Might be just tales, but according to the stories, that dog will dash into a flock of chickens or ducks, grab one by the neck so that it can't squawk, sling it over his back the same as a fox would, and run off with it, to his master, of course. Same way at night. He will grab one off the roost if it is in the open. Nobody can say whether a dog did it or a coyote."

"Well, he has something on Buck. If Buck got caught chasing chickens, he would march straight up to the owner, wagging his stump of a tail, saying as plainly as a little dog could that he didn't mean any harm."

We settled into the blinds, but weren't allowed to stay there. Buck kept threshing around the margin of the lake until he had flushed a half dozen snipe. Jim told me to go after them, that he was no snipe shot anyhow, but would remain in the blind and watch for ducks. I followed the snipe until I had four, finding that the Winchester sixteen with No. 6 shot would kill snipe all right, if they were not too far away. Jimmy whistled, and I dropped into the cat-tails. A pair of mallards had come in high, and were sailing about warily. No doubt this was a pair that had been chased out by Buck, and they were still suspicious. Twice they made a complete circuit of the pond, the hen bird leading, turning her head to one side now and then as if for a better look. Those birds were a good forty yards high, never coming directly over Jim. Twice the fowl winged directly over me, but I wouldn't shoot, being more interested in learning how Jim would solve his problem. The question was whether or not to wait and see if those birds would not come in closer for a sure shot, at the same time taking chances that they would elect to leave the neighborhood, which plainly looked suspicious to them. Jimmy decided to shoot, though the range was over fifty yards. Down came the lead duck without any hesitation. The drake also was hit, and began a rapid descent, though with his wings still under him. He passed directly over me, and I finished him. Though he could not have gone fifty yards farther, he'd have landed in the tall grass and might have been hard to find. Buck brought the big

greenhead to me, very proud of his mallard as he always was.

"Good boy, Jimmy!" I said. "That was fine shooting and good judgment. Those ducks were just about ready to quit us."

"Just what I thought," declared Jim, elated that the old duck hunter had found his decision wise. "They didn't seem to be coming any closer, and I didn't want to lose the chance. You stopped one of them, though."

"He was a dead bird, but might have fallen in heavy cover."

Buck brought in Jim's first bird, placing it where I had dropped the other one, and there the red dog would make his second pile with every duck killed near our side.

We had quite an interval without any shooting, but were content about it. We had four ducks, and were uncertain, late in the season in winter, as to whether or not we would get any more. It all depended upon how keen the birds were to get back to the little lake. We had the day ahead of us, and believed some of them would come back.

"What do you think of duck shooting, anyhow?" queried Jim. "I always did like to shoot ducks."

"The most scientific of all shotgun shooting, Jim. The man who hasn't had a lot of experience on wildfowl is lost, except they come in close. So long as he doesn't know precisely where to hold and has to guess at it, he will guess wrong about four times in five. But if a man is shooting ducks every day, from fifty to one hundred birds a day as the old market gunners used to, then the shooting becomes the easiest that I know. I have seen those lads shoot when it was just duck killing; ducks decoyed, no shot fired until the flock was within 30 yards. Then if mallards or pintails, a bird falling every time the gun cracked. An empty shell and no duck to show for it was bad for the market gunner. A four-cent shell shot at a twenty-cent duck, and no duck, was money being lost."

"I can't see where the fun came in," declared Jimmy.

"Neither could I, and that was the reason I wouldn't shoot ducks for the market when I had a chance. I sat in a blind with one of those lads one day with fifty decoys out. He was constantly warning me not to shoot, but to wait till they came in closer. 'Wait till they drop their legs,' he would say, 'and shoot into the thick of them. Finally I lost patience and shot at every flock that came within forty yards, not waiting for them



to decoy. The market hunter thought I was a chump, and said so. He never wanted me in a blind with him again, and I never wanted to be in there with him again, either; so we were of one mind about that. Right now I have a fellow feeling for the Englishman who tries to make his pheasants fly higher so that the shooting will be more difficult."

A flock of bluebills was coming, and we could see them a long way off to the east in the direction of the river. They were flying in a sort of wedge, a point with wings extending out in either direction, curved back, and in the rear a dozen birds flying in irregular formation. They passed us to the north, then curved and swung about until right overhead. We hadn't dared to make a movement to watch them, and they were right above us and going away from there before we knew it. It was not the easy shooting it should have been had we turned and taken them overhead. We both knew that the hold had to be under now, but just how much under? With four barrels we got two down, and then in desperation, keeping right on shooting, we killed two more away out so that they fell 70 yards from us, well over toward the other side of the pond.

Buck was in the water after the first two before the second pair fell, but he kept them all in mind. He brought in the first pair, one at a time, and then swam off across the pond for the last two, taking them to his pile on the other side. All the bluebills were dead, so he had no trouble in getting them.

"Not so good," said Jimmy. "I thought we could do better than that, with those big fellows fanning our hats."

"Not so good, Jim, but good enough. According to my count, we have eight ducks down, and the shoot is not over yet."

Buck had come in to sit down between us. He had no intention of being caught napping, but kept turning his head from side to side, and looking to see if anything were coming. He saw or heard the birds coming, and his fixed stare back of him caused us to look around. We turned, as it happened, just at the wrong time. A great flock of greenwing teal had come in from the southwest instead of from the east or north where we were watching. There must have been forty teal in that bunch, no more than 20 feet high. As we shifted to look behind, they flashed right over our heads; then, seeing us, flared in every direction, but all of them climbing. Jimmy and I got around on them just as quick as the Lord would let us. I suspect we were both rattled, at that. Shoot as we would (and I think we emptied our pump guns, in a day when there were no plugs in the magazines), not a teal fell. We watched them to see if one or two wouldn't let go and fall, but not one of them ever did.

Buck looked at us in questioning amazement. Jimmy started to cuss, and then laughed. I finally laughed myself, even if I do not like to miss ducks that come within forty feet of the gun.

"I held right on every danged bird," Jimmy declared, "and not one of them would die."

"Guess we both did, Jim. If we had held a foot above those little devils when they first started to flare out, maybe we would have done better. Never mind. We are out to kill mallards today, and not these little trash ducks."

Jimmy cut some sticks, waded out, and mounted our four birds in the shallow water as well as he could. They looked quite lifelike as the waves came in and moved them a bit. Buck looked on curiously, and made a move to go out and fetch those ducks in again, but I called him back. We kept a sharp watch in all directions now for a while, but it was half an hour before another duck came in. A flock of pintails came in very high, swung around once, too high to shoot, then left for the south. Three birds broke away from the flock, and came back. They had seen Jim's decoys, and meant to alight among them. Jim

shot first, dropping one, I killed the second, Jim the third, and then, just because I wanted to shoot, or from some "grandstand" impulse, I hit Jimmy's last bird twice before it struck the water. That tickled Jim, and a broad grin came over his face. He waded out and set up the last three ducks after Buck had brought them in, taking these three pintails farther out. Our decoys were making a showing now.

"Jimmy, we have eleven ducks down and it is only nine o'clock. Twenty-four is a bag limit. What will we do about it if this keeps on?"

"We might do like we did with them teal."

"We might, but we won't. Those little scamps had more luck than they ever would again."

It was winter time, but getting warm in the sun. I took off my coat and spread it down for Buck. He had seen nothing exciting going on in a long time, so curled up on the coat and went to sleep.

"Getting hungry, Jim?"

"Not so much hungry as thirsty, and I have four bottles of beer in the car. But let's wait for one more flock to come in, and then we will go eat, not to say drink. Never did leave a blind but what the biggest flock of the day came in right then."

"Isn't that so. One time I was in a sand-pit blind on the Cimmaron River; had been there since well before daylight. The morning shoot had been pretty good, and I had twenty-five ducks—some mallards, but mostly pintails. We were camped on shore no more than a quarter of a mile away, and it was about time for dinner. I concluded I would wait for one more flock, and then give it up. So I leaned back, crowded into the sand to fit my back for greater comfort, and rested easily. I was awakened by a great hulabaloo from back on shore, and turned to see what all the fuss was about. I gathered that ducks had come in to the decoys, but I knew that anyhow from the noise. The greatest horde of ducks was getting away from that blind



that ever I have seen in one place. Flock after flock of pintails had come in while I slept, one great bunch pulled in by another. I never shot—"

"Hist!" said Jimmy.

A good-sized flock of mallards had approached, and were beginning to circle. They passed completely around us once, at a distance, then headed straight for us, lowered, and from a height of 75 feet set their wings to drop into the decoys. Down they came in slow descent, whiff, whiff, yellow legs dropping, greenheads turning to see the water, talking in gentle chatter. I didn't like decoys before that, and I do not now. We shot, into the thick of them, as everybody does with decoyed birds, cutting out the entire center of the flock and dropping four with the first barrels. Two more were killed as they towered and went out. We might have shot more except that the last duck hit pointed his head skyward and went straight up. I shot at him twice as he climbed, apparently hitting him the first time but with no effect, for the bird was probably hit in the head and shock would have no effect, except if a wing was broken. He kept right on climbing until he looked a tiny fowl away up in the sky, then let go all holds and came down like a plummet. He hit the water a resounding splash, and Buck dashed for him first, perhaps thinking that duck would be alive.

"I quit shooting," said Jimmy, "thinking we had enough."

"Enough! Good Lord, Jim, what will we do with all these ducks? If I have counted right, we have six ducks down and only seven to go."

Buck brought all the birds in, and placed them carefully in his pile. We thought of taking up the decoys, which were responsible for that killing, but decided to leave the set, though in future we would take no ducks except those far out.

"I'll tell you what, Jimmy," I said, "I am going to get some practice now that I need. In future we will take no ducks except those going away, after they have crossed a dead-line between those two points—a good forty yards away. I miss more of those going-away birds, high up, than any other flight, and maybe we will learn something."

It was all right with Jim. I never saw a time when everything was not perfectly agreeable to Jimmy. Presently five pintails came along, with a perfectly evident intention of alighting to the decoys. We deliberately got up on our feet and shoed them off. Up in the air they went, and then out and off, straight back to the east the way they had come. Two shots apiece after they were 50 yards on their way, and no duck fell. We grinned at one another. Neither of us was shooting to miss, just for the purpose of missing, and those big pintails still looked close enough to hit.

"Must have been farther away than we thought," declared Jimmy. "They were a hundred feet high and a hundred and fifty feet away, and that makes a difference."

"Just so, Jim. Maybe they were sixty yards off when we fired. That is pretty far out for sixes. Next time we will be all ready to let go on the forty-yard line."

Two bluebills came out of the north no more than fifty feet high. They wheeled back of us and came directly overhead, traveling east. We sprang up to shoot, but the bluebills never wavered: got neither higher nor lower, nor changed the direction of their flight. We fired as they passed our imaginary forty-yard line, and killed them both, though they fell sixty yards away. Buck went after them, swimming strong, just his round, red head above the water. One after another he took those bluebills to his far pile in the cattails. According to my count, that was six ducks Buck had in his far pile.

"Where did you hold, Jim?"

"A foot and a half low."

"Guess that was right. I tried two feet low myself."

A flock of greenwings dashed in. They paid no attention to the decoys, but wheeled away out apparently sixty yards dis-

tant, closing up gaps in their ranks as they turned. We fired but a shot apiece, and three fell.

"Dog gone those dog gone teal!" said Jimmy regretfully. "They just would be killed, anyhow. Now we have only two birds to a limit, and a half a day to shoot 'em in."

Buck took the teal to his far pile, and returning passed clear around the southwest arm of the pond. The little red dog was probably getting tired of swimming. He was having the time of his life though, for he never had seen so many ducks killed before.

I told Jim that the next time I wouldn't shoot, so as to make the thing last a little longer. He shook his head. We had no time to debate, for the biggest flock of pintails of the entire day came in. We stood up, but it seemed they wouldn't scare, anyhow. Finally they started off in the direction of the river. I was waiting for Jim, and Jim was waiting for me, until the big birds got so far away that it appeared certain neither of us could hit anything. We fired together into the flock, and two birds fell, both stone dead.

That settled it. We had the limit of twelve birds apiece, and no intention of exceeding the limit. Buck swam over to retrieve the ducks, Jimmy went out to bring in the decoys, while I lighted a cigaret, contented with the world even if we could shoot no more ducks that day. Buck took one bird ashore and then the other, disappearing in the heavy cover.

Now a totally unexpected thing happened. From some distance beyond Buck's pile of birds came the sound of dogs fighting. One dog was Buck, the other making more noise. Then came an exclamation in Spanish, followed by a yelp from Buck. Somebody had kicked him, for no dog could get any such sound out of him. Jimmy and I knew that something was amiss. We ran up the arm of the lake a little distance, plunged in, though it went over our boots, and ran to where we had heard the noise. We met Buck coming to us, an enraged little dog with his hair all turned the wrong way on his back. He led us back faster than we could follow, to get into the fight again. We could see nothing until we topped the next ridge, a low sand hill, when we saw in the distance a man running, and beside him the red spaniel. The man wore a hunting coat of the kind with pockets all the way around, and those pockets were apparently filled with something. It never occurred to me to doubt he had our ducks. He was now 125 yards off, I took it.

"Loaded with sixes, Jimmy?"

"Yes."

"Let him have it!"

We fired together, and the man let out a yelp, jumped high, and broke into a grotesque run, his coat swinging and flapping with the weight in it as he reached back to rub his legs. Buck started to chase, but I called him back.

"Reckon we hurt him?" asked Jimmy.

"No, just stung him. I have been shot at that distance myself with sixes, and the shot do not penetrate—just sting. He thinks he is shot, though."

We went back, and had no trouble to read the whole story in the soft sand. The Mexican caretaker had stood over the brow of the ridge, perfectly hidden from us, and from there had sent in his dog, which from the tracks had brought in one duck at a time and delivered them. Buck had gotten in with his last duck in time to see what the spaniel was doing, and had followed him. The only bird left in Buck's pile was the last one we had killed.

"He has a darned smart dog, anyhow," declared Jimmy, "just as everybody said. There go ten of our ducks. What will we do now, kill some more?"

"Guess we had better call it a day, Jimmy. He might telephone the constable that we had shot him. I think he wouldn't, because that would only add to his reputation as a thief. The darned chump! We would have given him all the ducks he wanted, besides a bottle of beer. And I had a dollar that I

(Continued on page 35)



Upper: the Free pistol; lower: the gun we used in the 1936 Olympics

Free Speech on the Free Pistol

By ELLIOTT JONES

LADIES and gentlemen, unaccustomed as I am to public speaking, I brought a couple of guns along. No, I didn't bring them to pick off the eggs and tomatoes as they fly by. I merely brought them, plus a few other articles in this bag, to illustrate my lecture tonight.

I have chosen the topic of Olympic Pistol Shooting because it is one of the oldest events on the modern program and is entered by more nations than any other event with the possible exception of the sprints. It offers fair competition for small countries which do not have elaborate athletic plants and training facilities and men can develop themselves in this sport without going to costly schools.

Now, as the first illustration to my talk, I would like to show you this. It is a human foot. I trust you can all see that, but don't be shocked, for it is only made of plaster. However, it will serve.

This foot—see? Well, it's the sort of thing we folks ran around on, just as it was, for some ten thousand years. Recently, say only a few thousands years ago, some brilliant lad discovered that if he wrapped it up in some hide, he could run over the stony ground so much faster and so much farther that none of the other boys could catch him. In fact he got there first so many times that he got more game and more wives than anyone else, until they, too, covered their feet.

Then a long time after this fellow's invention had become popular, along came the Greeks. They invented a whole lot of other things, like a word for "It", Tryremes, and those high school fraternity things, but one of the best things they invented was something to go with this foot. They called it

NOTE: This article, like all others that appear in *THE AMERICAN RIFLEMAN*, represents the personal viewpoint of the author and not the editorial opinion of the magazine.

The National Rifle Association has, as Mr. Jones says, provided in its rules for the "Free Pistol" and for the enclosed firing points which are an essential part of Free Pistol training and competition. We have not regularly scheduled Free Pistol events for three reasons:

1. The question of safety (which Mr. Jones mentions in the accompanying article);

2. The question of how much real interest there is among American pistol shots in this type of shooting;

3. The question of responsibility. The U. S. R. A. has long been affiliated with the International Shooting Union—as has the N. R. A. It is accordingly the responsibility of the U. S. R. A. to train shooters and select and finance international pistol teams, as it is the responsibility of the N. R. A. to train shooters and select and finance international rifle teams. It has not been the desire of the N. R. A. to encroach on the field of international "Free Pistol" shooting.

It is, however, the policy of the N. R. A. in this—as in all other matters affecting the interests of the rifle and pistol shooters of America—to give the shooters what they want as nearly as finances and personnel permit.

If enough members indicate their interest in the development of the "Free Pistol" type of competition, both for matches in the United States and as preparation for the biannual International Shooting Union and quadrennial Olympic events, the N. R. A. will include such events in its programs and will use its good offices in the direction of encouraging the development of American-made "Free Pistols."—ED.

"The Olympic Games". This idea took a dive for a few centuries while the boys were calling themselves knights and were turning to suits of tool steel with gilding metal vests and maidens in distress for their sport, but at long last the Olympics came back into their own once more—and that's where the foot comes in.

By the time they had re-discovered the fun of having these competitions, a lot more inventing had gone on. People covered their feet with shoes, and some even wore socks. Boys who ran in the new Olympics wore light, *especially made* shoes with spikes in them. In fact, the spiked shoe revolutionized running. Any athlete who tried to compete in moccasins or sneakers found he lost the hundred yard dash by the length of a good tow rope. Today no one would be foolish enough to try to run against such company in tennis shoes. No athletic committee would equip its men that way and no coach would say the sneaker was "just as good or better" and blame the man, if he lost.

Do you all wonder that this has to do with a lecture on pistol shooting? Well, then, I'll put this foot back in the bag and we will have a look at this gun. Everybody take a good look. This is the sort of pistol that Ullman used in the 1936 Olympics. He made a World's record of 559 out of 600

with it. He had shot up to 575 in practice with it. It's the same type of gun that every single nation—except one—used for the slow fire match. All the nations of Europe that make their own guns, all the nations of Europe that don't make their own guns, and all the nations of South America that *could* buy American guns—they all shot this type. The average practice

score preliminary to the match was about 540. The American record is 538.

The United States shot its own type of gun. The United States got trimmed. If we had won—if we had ever won at the Olympics—except in one noteworthy instance—we might think everyone was out of joint but ourselves, and that our guns were being unjustly slighted.

Maybe our guns are being misjudged. Perhaps, after all, those who say our continual defeats are due to our inferior shooters are correct. Karl Frederick has been our only winner—back in 1920. He shot the same gun we used in 1936. He shot under conditions which favored that brand of pistol, but he was one sweet shooter, anyway. The fact that he was a fine shooter rather sours the argument that Americans aren't up to the Europeans. Americans of foreign extraction win track and field events—but they don't run in tennis shoes!

Any shooter who fires a match score that equals his practice average is the best kind of a man to rely upon in a match. The 1936 Americans did just that, while all around them men from other nations got the "Buck"—and they are the ones we hear so much about as being superior! If anyone says the Americans shot such poor practice and qualifying scores that they had no place to "fall down to", then the blame is not on the team's shoulders, but upon the selecting committee's.

The United States Revolver Association maintains that our pistol is "just as good or better" than the Free Pistol, but at the same time it bars the Free Pistol from matches ordinarily shot with the conventional gun. Inferior guns don't have to be kept off the range by RULES. They will weed themselves out. This Association does have a special postal match—once a year!—in which "any pistol" may be used, but though it has irrationally condescended to be so liberal in this respect, it is still more inconsistent in being guided by a tale of "The Long Ago" which is invariably cited as "proof" of the free pistol's worthlessness. This tale has to do with a "test" supposedly conducted by a couple of the best shooters of the day. One of those men still is one of the best shooters of the day. His name is Ray Bracken. He knows what he talks about and he doesn't talk what he doesn't know about. Any test by him would be pretty conclusive and that is why the tale used to bear weight.

The oft-repeated story has it that Ray and another man shot the free pistol for a year—shot nothing else for all this arduous time—and then, whipping out their trusty ten-inchers, they spanked the jerkin's off their free pistol scores! Which little tale has checked many an aspiration to give the free gun a trial. What would be the use of going to the trouble, if it had already been tried out so thoroughly by such a recognized expert? Well, there probably wouldn't be any use except on a chance that times have changed and that the foreign guns have improved.

There wouldn't be any use, either, in checking the story, would there? Since it has played such an important role in the arguments of the Anti-Free Gunners, it might pay to have a glance at this letter I have in my bag. It comes from Ray Bracken, who, along with Karl Frederick, used our ten inchers to outshoot the foreign guns in 1920. For four years that settled the matter in Ray's mind, but in 1924, this letter says, he "got to thinking" and borrowed a Free Pistol to shoot outdoors for about 2 months. At this time his scores were "not so hot"—"average around 480". Then he took his gun to a cartridge company for a machine rest test. "At fifty yards it would group 2½ inches with 'outers' every so often". Maybe that's the kind of junk that the foreigners unloaded on us poor American hopefuls in those days. Maybe it's what they actually believed was "guilt edge" accuracy, but today we don't have to worry about accuracy, for an H&R will spit them all into a one-inch bung at 50 yards.

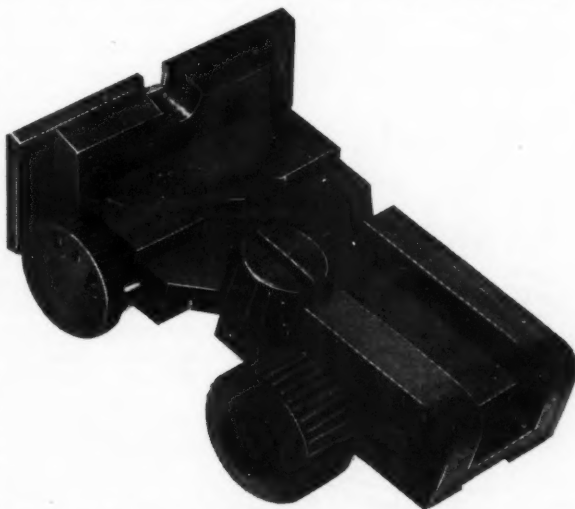
As the correct slant on the "conclusion test" unfolds further,

we find Bracken saying, "In 1929 I made a trip to Europe, shot with Zimmerman, and saw the boys shoot well around 520, so I bought a gun. In the Spring of 1930 I shot it and nothing else for several months with a four ounce pull. My best score was 527 (only about 10 down from our record, Folks), but I found my *poor scores were never as low as with the Smith or H&R.*"

From all that, it seems as though the test was quite "conclusive"—but in an entirely different way from what has heretofore been taken for granted. When we note that Bracken was trying to squeeze larger than 2½ inch groups into a two-inch ten button and that even then his low scores were better than the low ones with our guns which had better accuracy, it shows that the long sight radius and the light pull more than offset his accuracy deficiency. If he had had decent group propensities in his gun, maybe we would be talking of *him* in hushed tones instead of Ullman.

It is true that the National Rifle Association has recognized the "Free Pistol" in its General Regulations for years—but it includes no matches for this type of handgun in its extensive pistol programs. Two years ago the N. R. A., under the guidance of Ray Bracken and Karl Frederick, both of whom are on its Executive Committee, also took the major step of changing its General Regulations so as to permit the construction of shooting booths for all its outdoor pistol matches—except, of course, Service and Police Pistol Matches—but up to this time none of the N. R. A. Registered Tournaments have taken advantage of the opportunity to enclose their firing points.

Please notice this Free Pistol again. It's built like a match rifle. How often do we read about a rifle being no better than its sights? That holds for a pistol, too. The American present-day pistol will group like a rifle, but it is no better than its sights. Look at these sights on this gun. Adjustable in



The detachable rear sight of the Free pistol shown. Its dovetail slot slips over the projection at the rear of the gun, and is locked by a screw

clicks vertically and horizontally; adjustable as to size of the rear notch. Look at the sight radius—half again as long as ours. If sight radius doesn't mean anything, why don't half our records go to the pocket pistol? How about this trigger pull? Goes off if your stomach rumbles, but it can be adjusted up stiff.

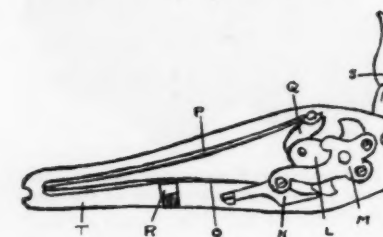
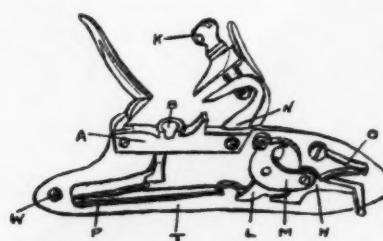
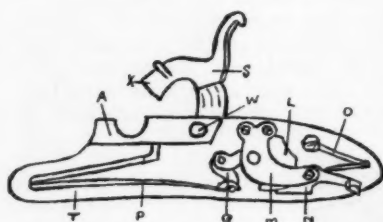
Supposing you do like this gun, what's the use? You can't get into a match with it because the N. R. A. has none and the U. S. R. A. is all gagged up with rules. Those rules were
(Continued on page 37)

The Complete Rehabilitation of the Flintlock Rifle

By T. B. TRYON

Part II: The Reconditioning of Locks

Fig. 1: A, B, C, and D, from top to bottom. Shows, A, obverse of flintlock; B, reverse of flintlock; C, reverse of bar-action percussion lock; D, reverse of back-action percussion lock



The following applies to all four locks shown above: A, Bolster; B, Pan (magazine of); C, Fence; D, Hammer bridle; E, Hammer (back of); F, Feather spring; G, Cock (comb of); H, Cock (shoulder of); J, Upper jaw; K, Flint screw; L, Tumbler; M, Bridle, tumbler; N, Sear; O, Sear spring; P, Mainspring; Q, Link; R, Stud; S, Striker; T, Plate; U, Anti-friction roller; V, Tumbler screw; W, Side nail hole; X, nose

THE efficiency of a muzzle-loading rifle depends to a considerable extent upon the condition of the lock, and it is but rarely that one is fortunate enough to acquire a rifle with this component in a condition equivalent to new—which is requisite when consistently rapid ignition is desired. For this reason, as well as because of the difficulty of securing original flintlocks, one often takes what can be found, with the idea of subsequently reconditioning it. The tuning-up of the important members, that they may function as surely, smoothly, and swiftly as when the lock left the hands of the maker, may require that badly worn limbs be replaced, or merely that the rust be removed and a worn pivot or two replaced. This reconditioning often involves considerable time, patience, and experimentation, but the result will more than repay the effort.

In selecting a suitable lock, condition is of secondary importance to type, for some of the earlier specimens of flintlocks—crudely filed and finished, and lacking the improvements of the later types, are hardly capable of functioning, even when reconditioned, in a manner which would compare favorably with the performance of the improved late-period Kentucky flintlocks. While a discussion of types has no place in this account, it should be noted that lock filers of the flint period dedicated considerable time and effort to the purpose of improving the mechanism of locks. Years of exhaustive experimentation resulted in the appearance of

many notable improvements at various times, among which were: tumbler and hammer bridles, anti-friction rollers, friction shoulders, swivel action, detents, etc. And these, together with the rain-proof pan and the improved forms of cocks and hammers, served to render those locks that are typical of the late eighteenth and early nineteenth centuries, quicker, smoother, and more reliable in action. Obviously, then, a well-filed lock of the late flintlock period is preferable to the crude earlier specimens insofar as functionalism is concerned.

The plate of the lock selected should be relatively heavy in order to obviate the possibility of its bending under strain, which would tend to bind the limbs. In

order to determine the condition of the tumbler, which is the keystone of the mechanism, so to speak, check the following points: If the cock is not steady at full or half bent, the square of the tumbler is loose in the tumbler hole of the cock. This may be corrected if not too loose. If the cock rubs on the face of the plate, the arbor of the tumbler does not project sufficiently. This condition is repairable. If the axis of the flint screw is not parallel to the chord of the hammer face when the cock stands at half bent, or when at full bent the axis of the flint screw does not form a 60 to 65-degree angle with the chord of the plate, either the bents of the tumbler or the nose of the sear, or both, are deformed. If there is stock enough in the tumbler to allow for properly reshaping the bents, a new sear with longer nose may be fitted, which will correct this. If the tumbler rubs against the hammer bridle or the plate, the pivot or the arbor of the tumbler may be badly worn. Both should fit accurately in their respective holes; if not, the tumbler should be replaced. If the hook of the tumbler drops below the edge

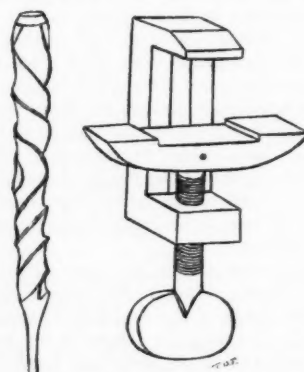


Fig. 2

of the plate when the cock is fully released, this is due partly to extreme looseness of the tumbler square in the tumbler hole of the cock, and partly to a strained or bent bridle screw or deformed tumbler nose. This usually requires replacement of the tumbler.

If an examination discloses any of the irreparable defects, and some of the repairable ones, a new tumbler carefully

fitted and adjusted to the reshaped adjacent members will be found the simplest and most satisfactory method of putting this part of the lock into a condition equal to new; nor will there be any necessity of filing other new parts, *unless* the hammer bridle is cracked, as it may be near the pivot hole, or the nose of the sear is so badly damaged that it cannot be properly reshaped. Obviously, the *degree* to which the tumbler is worn or damaged will determine the necessity of replacing that member, but it will be apparent that if it is necessary to reduce the dimensions of the tumbler to any very great extent in order to bring the mechanism into adjustment, the result is liable to be unsatisfactory. Which latter also applies to the following repairs, though they may suffice temporarily: Swaging the tumbler hole of the cock so that it will fit tight on the square of the tumbler; peening-in the sides of screw holes, the threads of which are stripped; drilling and inserting pins to replace broken or badly worn pivots on tumbler, tumbler bridle, and springs; brazing broken or cracked limbs, and upsetting body of tumbler at notches in order to improve stance of cock.

Prior to making any adjustments, the lock should be entirely dismantled, the rust removed, and the members polished. Among the tools required are a spring vise and a tumbler punch (Figure 2). Be particular to use screw drivers of the proper size and shape, for the filister heads of the screws are easily damaged. If the rust is very heavy and the screws frozen, soak the entire lock in kerosene or a penetrating oil. Sometimes a stubborn screw may be started by turning it in tighter, and then backing it out. To loosen a screw which refuses to yield to the soaking process, apply a red-hot rod to the head or projecting stem until the screw is heated, when it should be easily turned out. If a screw resists your best efforts, if the head is broken or is countersunk so as to prevent its being grasped with a hand vise, it will be necessary to drill it out and turn up a new one.

Now for dismantling: Draw cock to full bent, and cramp the mainspring very slightly by means of the spring vise (a hand vise may suffice in lieu of the spring vise, or even a pair of parallel-jaw pliers). While the spring is compressed, the cock is let down and the point of the fixed branch of the mainspring—which is secured in a groove beneath the lower edge of the bolster—is released by depressing the branches of the spring, before attempting to withdraw the pivot from the plate. The

sear-spring pin is now backed out three or four turns, the elbow of the spring tapped with the screw driver to free the stud from its mortise, whereupon the pin and spring are removed from the plate. Next remove the sear pivot and sear, and the bridle pin and bridle. In order not to mix these pins and pivots, it is well to place them in holes pierced in a heavy sheet of cardboard, in the same relative positions that they occupied in the lock. After turning out the tumbler pin, the cock is removed from the tumbler by grasping the former firmly, and tapping the lock plate with the handle of the screw driver. If this fails, support the plate on blocks, and drive the tumbler out by inserting the tumbler punch in the hole of the former. By cramping the feather spring, pressure on the heel of the hammer is relieved sufficiently to allow the hammer pivot to be removed. The feather spring is now removed by backing out the feather spring pin, and freeing the former.

Examination may now disclose that the rust is little more than a superficial film easily removed from the surface by a fine grade of emery cloth wrapped around suitably shaped files. Having roughly removed most of the rust, that remaining may be scoured off by buffing on a fine soft steel wire buffer—a few drops of lubricating oil on stubborn spots hastening the operation. With the exception of the magazine of the pan, the under side of the lower jaw of the cock, and the seat of the hammer—all of which may be badly pitted due to the corrosive action of powder gases and rust, the members will now probably be relatively free of rust and pits, unless the lock was origi-

nally in a badly rusted condition. Due to the fact that the internal mechanism and the inner face of the plate were usually kept well oiled, and also that these members are hardened, it will invariably be found that they have resisted the effects of rust to a surprising degree.

We will assume that the members prove to be so badly worn that the replacement of the tumbler is necessary. Select, therefore, a suitable piece of tool steel, and anneal, if necessary, by heating to a dull red and cooling in hot ashes. If it prove too hard to work, heat to a cherry red and repeat, bearing in mind that overheating will ruin the steel. First, ream out the holes in lock plate and tumbler bridle for the arbor and pivot of tumbler—the latter invariably to be made integral with the body of the tumbler. In roughing out the tumbler, leave sufficient stock

Fig. 4: A, End and side views of tumbler as turned on lathe; B, Shows proper shape and angle of bents; C, End elevation of cock and tumbler; D, Perspective of tumbler (the friction shoulders are exaggerated in this cut)

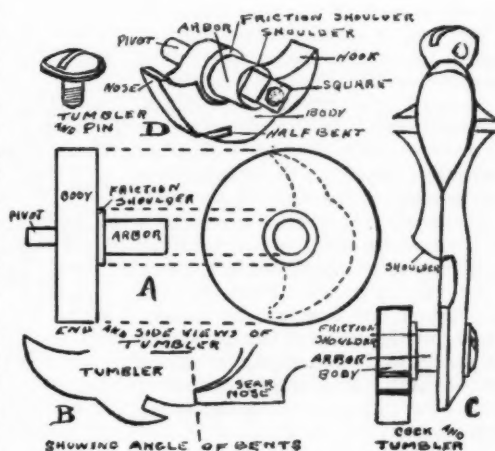
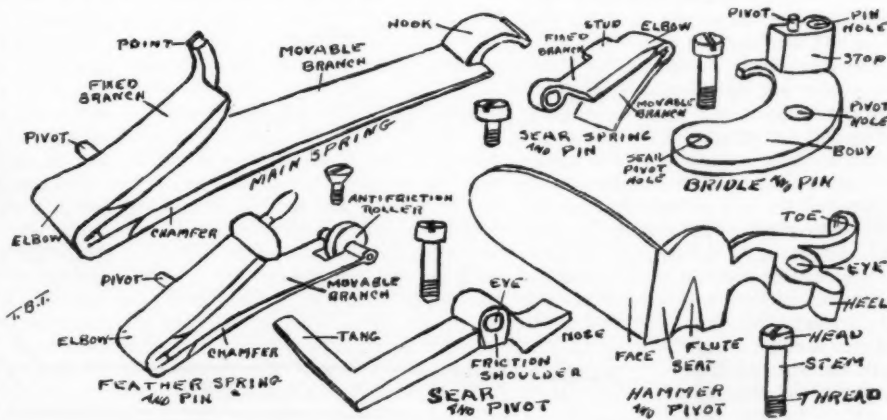


Fig. 3—Sketch of limbs



at the following points to allow fitting: nose, arbor, pivot, friction shoulder, and body at bents. The last, together with the square of the arbor, should not be filed until the tumbler has been fitted to the bridle and plate. The tumbler may be quickly turned in a lathe to the shape shown in Figure 4-A; if this work is done with hacksaw and file a longer time will be required, but it is not a difficult job.

Work the body of the tumbler down to the proper thickness, leaving the friction shoulder somewhat larger than the diameter of the arbor—which, with the pivot, should at this stage fit in their respective holes so tight as to bind. Then assemble the new tumbler, bridle, and mainspring—releasing the latter carefully in the spring vise. Now note the position of the hook of the mainspring on the hook of the tumbler—in relation to the edge of the lock plate, and mark the nose so that the hook of the tumbler will descend to a position that corresponds to that in the hook action, B, in Figure 1. Next, center the tumbler hole of the cock on the arbor of the tumbler, for the purpose of marking the latter for filing the square of the tumbler. Make certain that the angle of the shoulder of the cock (which should be trued up if damaged) is parallel to the top of the bolster, and make allowance for these members to contact before the sear nose and bridle stop do—in other words, there should be a clearance between sear nose and bridle stop when cock is fully released. This measure is important, for the shoulder of the cock striking the top of the bolster should absorb the shock of the descending cock. When filing the arbor square, take care that the shoulder is so shaped that the inner face of the cock lies parallel to the face of the lock plate, and also that the arbor projects sufficiently to allow the cock to clear the face of the plate by .015".

Now try the sear pivot in the eye of the sear. If it is very loose, the eye should be reamed out and the lock plate tapped for a larger pivot. Cut the thread on the stem of the pivot in such a manner that when the latter is turned in tight, the bridle will not bind the sear. The nose of the sear should be shaped up blunt and square, and be honed and polished. Now put the hammer in place, remove the mainspring, and attach the sear spring by turning in the sear spring pin a few turns, and pressing down on the elbow of the spring until the stud engages the mortise in the lock plate. Then tighten the pin. Thus, by means of the nose of the sear held against the body of the tumbler by the tension of the sear spring, you are prepared to mark the side of the body of the tumbler for the



Fig. 9

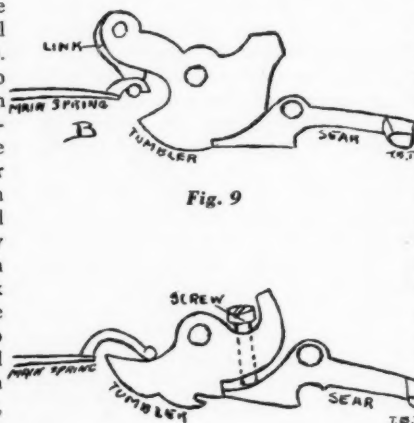


Fig. 7

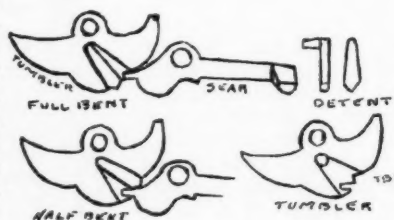
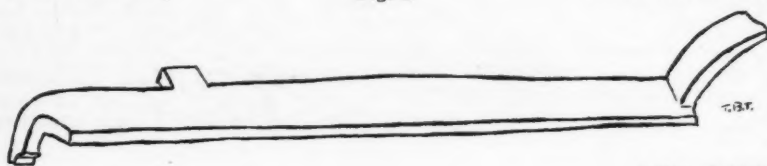


Fig. 5



Fig. 6

Fig. 8



positions of the bents. Cut the half bent first (see Figure 4-D), re-assemble the members, and mark the position of the full bent. At half bent the axis of the flint screw should be parallel to the chord of the hammer face, which will allow the flint secured in the jaws of the cock to clear the face of the hammer when the cock is in this position, while at full bent the axis of the flint screw should form a 60 to 65-degree angle with the chord of the plate, to insure sufficient sweep for the cock. The bents should be formed similar to those shown in Figure 4-B, the half bent being deep enough to prevent the cock from being released by a blow of the striker of the set-trigger; while the full bent should be no deeper than the depth of the nose of the sear, and of an angle which obviates the possibility of the cock being jarred off, yet at the same time does not require that the trigger release force the sear nose to cam the tumbler back against the resistance of the mainspring in order to clear the bent. This is of especial importance in the adjustment of a set-trigger lock. Both bents should be filed square and sharp, with the surfaces parallel to that of the sear nose.

Locks used in conjunction with set-triggers sometimes carry a detent (see Figure 5)—a small pawl pivoted on the side of the tumbler body which allows the nose of the sear to drop into the half and full bents as the lock is cocked, but deflects the sear nose from the half-bent notch as the released tumbler rotates upon its axis. This is of considerable advantage on a set-trigger lock, for while a single direct-action trigger pressed back by the finger keeps the sear nose clear of the half bent while the cock descends, the lightning-like blow of the striker of the set-trigger may not keep the sear clear of the half-bent notch unless the tension of the mainspring of the set-trigger be increased to such a degree that it is with difficulty that the trigger is set. Therefore it will often pay to let a detent into the side of the body of the tumbler while the latter is soft. To do this, remove as much of the metal of the tumbler as possible by drilling, and then cut the corners sharp and clean with a diamond chisel. The pivot of the detent should be made to fit its hole snugly, in order to allow for polishing after it—and the tumbler—have been hardened.

The tumbler may be heated to a cherry red in a charcoal fire, and quenched in linseed oil. If a fine-cut file will touch it, reheat and quench in boiling water—never cold water. The detent should be hardened

likewise, and both pieces given a final polishing with fine emery and crocus, and then heated carefully until they

acquire a dark blue color, when they are again quenched. Accurately hone the bents with a suitable hard Arkansas stone. A little flour emery and oil may now be applied to the bearing surfaces of the hook, arbor, and pivot of the tumbler, and the lock assembled and worked for a time in order to work-in and polish the bearing surfaces. When the tumbler works freely with the bridle in place and the mainspring and sear dismounted, wash out the abrasive and polish the arbor and pivot with crocus.

While on the subject of hardening, it should be noted that the tumbler, sear, springs, face of hammer, and usually the flint screw, are of steel, while the back of the hammer and the remainder of the parts are of iron, all surfaces of which are sometimes casehardened. The tumbler, sear, and flint screw of some early locks are of casehardened iron, while the hammers of some locks are entirely of steel. When an obviously soft part will not harden when submitted to the above process, the following method of casehardening will undoubtedly suffice—whether the part is of iron or steel. Pulverize and mix intimately two parts of yellow prussiate of potash [a deadly poison, even the fumes being dangerous] and one part of saltpetre. Heat the part to a cherry red, sprinkle the compound on, return to the fire and "soak" the compound well in, and then quench in brine. A second application and "soaking-in" after quenching may increase the depth of the "skin." Always employ charcoal as a fuel, as the sulphur in coal ruins steel.

Now if, on the other hand, the mechanism—aside from the repairable defects mentioned, is in relatively good condition, a new tumbler will be unnecessary. If the tumbler square is not too loose in the tumbler hole of the cock, tighten it up by upsetting the hole on the inner face of the cock with a cold chisel placed about 1/16-inch from the edge of the four sides of the hole (see Figure 6). As before stated, this is not a good practice, but if the cock is not very loose and the bridle stop and sear nose are in good condition, it will undoubtedly suffice. If the arbor of the tumbler does not project sufficiently to allow the cock to clear the plate, the condition may be remedied by working-down the body of the tumbler on the side next to the plate. When the cock is drawn tight against the shoulder of the arbor (see Figure 4-C) there should be .015" clearance between the plate and the cock.

The stop of the tumbler bridle and the body of the sear must now be worked down a corresponding degree. If the bents of the tumbler are badly deformed, the reshaping will alter the position of the cock at half and full bent. Therefore, in order to maintain the proper stance of the cock, fit a new sear with longer nose.

One from a worthless lock may do. Ream the eye and fit a new pivot if necessary, and hone-up the nose before reshaping the bents, the surfaces of which should be filed square and parallel to that of the sear nose. If the release is creepy, due to the full bent being too deep, drill and insert a pin in the body of the tumbler just behind the notch, which may be filed down to regulate the pull-off. In some locks the tumbler has a screw tapped through the body for a like purpose (Figure 7). Do not be tempted to file away the tumbler in order to reduce the depth of the full bent, for this will invariably cause the sear nose to drop into the half-bent notch as the cock descends.

The jaws of the cock should be parallel when drawn down on the flint—if not, there is too much play between the back of the upper jaw and the comb of the cock. This may be corrected by heating and drawing out the upper jaw by hammering carefully, or by replacing that member. In fitting it, drill the hole for the flint screw first, leaving plenty of stock for the purpose of fitting the back of the jaw to the comb, which should be done next. Shape it up to correspond to the outline of the lower jaw, which is slightly the smaller of the two.

If the heads of pins or pivots are broken or deformed, or the stems bent or badly worn, these should be replaced. The hammer pivot may be badly worn on its under side, and this should be replaced by a pivot of larger diameter if the eye of the hammer is worn, which will necessitate reaming the latter, of course. If the seat of the hammer does not closely fit the pan, it will probably be improved by the replacement of the worn pivot. If not, the judicious use of a file on both the hammer seat and the top of the pan will help some, though care should be taken not to alter the stance of the hammer by removing too much metal, for this will make it difficult for the cock to throw the hammer back. The main thing is to get the joint tight enough to confine the priming. Grinding out the magazine of the pan with a mounted carborundum point will improve the general appearance of the lock, and the polished surface will be easier to clean.

This brings us to the subject of springs. The proportionate tension of the springs should be established. If the mainspring is too weak, the hammer will not fly back and uncover the pan. On the other hand, if the feather spring be weak, the action of the flint on the face of the hammer may fail to create many, if any, sparks. This may be determined by assembling the lock and snapping it in the hand with flint in place. If it functions properly when tried thus, it will certainly perform properly when on the rifle—unless the working parts are wood-bound. The hammer

should seat firmly and offer resistance to the released cock until the moment the flint leaves the face of the hammer, when the latter should fly back smoothly and sharply. This is governed to a considerable extent by the size and position of the anti-friction roller. Examination of the roller pivot may disclose that it is badly worn and the roller itself worn out of round. If the action of the hammer is lousy, increase the size of the roller, which will increase the tension of the spring and cause the hammer to seat firmly on the pan. The roller should also be increased in size if the heel of the hammer has become grooved, the larger roller allowing for working down and polishing the latter. After reshaping the heel, wrap the hammer in wet rags, heat the heel, and caseharden. To make the roller, chuck a piece of drill rod in the lathe, drill the center for the pivot, turn to the proper diameter, polish the periphery, cut off, harden, and temper blue.

If the face of the hammer is too hard, the flint will hardly make an impression on it, and the spark will be weak and short-lived. If too soft it will not offer resistance enough to create many if any sparks, and will be soon cut away. When properly hardened, the face offers considerable resistance to the flint, which rasps off tiny particles of steel which are ignited by the friction developed. Thus will be created a good shower of brilliant sparks which linger and glow for a moment in the empty pan. The hardness of the flint affects this to some extent, and various flints should be experimented with before altering the hardness of the hammer.

If the face of the hammer is badly worn the hammer may be refaced. A piece of a power-hacksaw blade will serve for this purpose. Anneal it, cut it roughly to shape, and bend it to the contour of the hammer. Clamp it to the hammer by means of two small cast-iron "C" clamps, with spelter and flux in the joint. Secure one of the clamps in the vise, with the spelter joint in a horizontal position and the hammer face uppermost so the melted spelter will not run out of the joint. Heat by means of an acetylene torch until a blue flame arises, which shows that the spelter is melted. The clamps are then tightened down and the hammer allowed to cool. A red heat will not affect the joint. Harden, and temper to a straw color bordering on brown, after first shaping-up the face, removing the excess spelter, and polishing. It may require considerable experimentation to find the proper hardness for the face, but a number of flints should be tried before retempering.

If the mainspring is not sufficiently strong to cause the hammer to be thrown entirely back at each trial, after the latter

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Spring Bear on Bald Mountain

By KENNETH FULLER LEE

IT HAD been uncomfortably hot in the valley at the base of the mountain, and struggling diagonally up its snow-blanketed sides on our narrow webs, Rupert and I were forced to remove our heavy woolen stag shirts, and consign them to the tops of our overladen basket packs.

Near the summit the warm afternoon sun had softened the snow, which packed hard under our heels and in a short time made uncomfortable lumps which had to be knocked off with the heavy metal-tipped hilts of our hunting knives before we could continue our upward climb.

In the packs were our sleeping bags, a light cooking kit, and food for a three-day trip far from the nearest base of supplies, together with extra ammunition, a pair of good binoculars, and one of my small cameras—indispensable to a hunt of the kind we contemplated.

Just at nightfall we found our objective: a narrow gulch bordered by stunted spruces, and sheltered from the wind on all sides. (The nights in early May are

cold enough anyway, especially at close to four thousand feet elevation!)

We got out our belt axes and went to work, first trimming-out some small poles for the framework of our leanto, which was then quickly thatched with the branches and tips of fragrant spruce. Inside, a thick bed of the same material was made, and we hacked off large chunks from a dry fallen pine for the night fire.

Few things feel better than the inside of a down-filled robe after a hard day of travel, and with a hot supper of bacon and beans and tea under our belts, we stripped to our woolen underwear and climbed in, making sure that there was additional firewood which could be reached without leaving our beds. And we kept the rifles handy, realizing that the gulch in which we were camped was a favorite "crossing-place" for the bears, and that we might have a nocturnal visitor wearing just the sort of pelt we both coveted. But this did not eventuate, so at daybreak we reluctantly crawled out into a cheerless world,

started a big fire, and a smaller one for cooking purposes, and for an hour busied ourselves with preparation and disposal of a hearty breakfast.

Finally the sun came out, and leaving our packs at the leanto, we again donned the snowshoes and went out onto the flat crest of Bald Mountain, rifles slung at our shoulders and the binoculars busily scanning the unbroken expanse of glittering snow for the fresh "trough" of a wandering bear.

My little 6.5-mm. Mannlicher was filled to capacity with 160-grain soft-noses, the muzzle velocity of the load being around 2400 feet. Rupert was carrying his Krippner Mauser, a .30-'06 using in this instance 172-grain open-point bullets at a slightly greater velocity. On this latter rifle was mounted a Zeiss scope of five-power and fine definition, having a picket-topped post instead of the customary cross-hairs. For bear hunting in open country, and shots at the longer ranges, this makes a fine outfit.

At nine a. m. we picked up our first fresh

trail, coming out of the low spruces and wandering, black-bear style, all over the mountain. It looked as if a miniature snow-plow had gone through, leaving a deep ridge in the snow, with the broad, man-like tracks of a big bear at the bottom.

The air was fairly thin at that altitude, and our lungs felt the deficiency as we spurted off on the trail. Our bear was looking for food—probably had just come out of his long sleep and was ravenously hungry. He stopped now and again to lift a big rock or a fallen snow-covered log in search of mice or moles.

In two hours we caught our first glimpse of him, a shining black bulk outlined against the snow more than a quarter of a mile distant. Through the glasses he certainly did look good, and we tested the wind carefully before again going after him. Bruin has notoriously poor eyesight, but there is nothing the matter with his nose—as many an ambitious hunter has learned to his sorrow.

He was headed for a cliff at the north end of the mountain, and there would be forced to make a detour into the stunted

spruces, where we would no longer be able to either see or keep up with him. So we hustled along, hoping to get within fair range before he arrived at the sheer ice-coated wall that loomed ahead.

That black coat made a fine target, so at about 600 yards Rupert sat down on his snowshoes, adjusted his sling-strap, and went to work. The bear was close to the cliff now, and my partner's first shot splintered the ice some three feet above the furry bullseye. With the spat of the bullet that bear reversed himself like a flash, and back-tracked straight toward us, at amazing speed. We just sat still and watched him come, snow flying in his wake. Rupert cuddled his lean face down on the Mauser's cheek-piece, and I snuggled the Mannlicher buttplate tight against my shoulder.

No bear ever made a worse error than that one. With the double crash of our rifles he upended, and spun down in a flurry of snow, threshing in a tangle of legs and paws for a moment before he subsided. Hastily we slammed the bolts to eject and reload, but we both knew that no follow-up shots would be needed in this

particular case. Our bear was dead enough to skin. Inspection clearly proved that either of the two shots would have sufficed, both bullets having landed fairly in the chest, penetrating the lungs, raking down the body, breaking ribs, and generally mussing things up inside.

Our bear was a big one, and lacking scales, we estimated his weight as being well over 400 pounds. Not a record by any means, but much too large to pack out in one piece. So we went to work with our knives, stopping frequently to sharpen the thin blades on pocket Carborundum stones. We got his glossy pelt off, and carved out thick slabs of the dark steaks from his hindquarters, also taking pains to remove and wrap up in the black pelt several pounds of glistening white fat. Bear fat is a grand softener for belts, hunting boots, and other leather equipment, and old trappers claim that it makes a fine ointment for rheumatism and sciatica.

We hated to leave so much good meat for the whisky-jacks, who began to float in on noiseless wings before we had com-

(Continued on page 37)



Present National Pistol Records

EVEN though the reader gives the National Pistol Record list for January 1st, 1938, shown on the opposite page, a great deal more than a casual inspection he might easily miss many of the most interesting bits of information. Many of these facts are only revealed through a careful comparison of this year's records and those published a year ago in the January 1937 *AMERICAN RIFLEMAN*. Other facts of equal interest to the ardent handgun shooter are hidden away either in the N. R. A. record books, or in the Official Bulletins of the forty-four N. R. A. Registered Pistol Tournaments held during the past year.

Here are some facts we believe will interest all members of the pistol and revolver target shooting clan.

Seven of the new records established in 1937 were team records, and neither the individual National Match nor the Camp Perry Course records with center-fire pistols or revolvers were even equaled, which leads us to think that more and more attention is being centered on team shooting. This will improve the marksmanship of all club members and department personnel rather than develop certain outstanding shooters and expecting them to carry the load. This we think is a good trend of events, and one that will improve the sport as a whole as time goes on.

The West Coast shooters seem to continue to monopolize the outdoor record list this year, although not quite so thoroughly as in the past. Shoulder-to-shoulder outdoor match shooting (where records are established) is possible on the West Coast over the entire year, and consequently shooters there have more opportunity than elsewhere to become accustomed to competition and the nerve control necessary to shoot scores in matches comparable to their practice ones. As more and more matches are held in the Middle West and East this will show to the advantage of shooters from these districts and the records will be proportioned accordingly.

The scores published January 1936 for the three single stage courses with .45 caliber handguns seem to have proven hard to better, although the timed-fire and rapid-fire scores were equaled. Only a few years ago the .45 caliber automatic was considered anything but a target gun, and very few matches, limited to such arms, were programed except at the National Matches. More and more interest is being shown in .45 caliber matches and the small margin separating the center-fire and .45 caliber records seem to show that the service pistol, properly tuned up, makes a very satisfactory target gun.

It took just one year and twenty-two days to establish a new record for 20-shots slow fire at 50 yards with the .22 caliber pistol or revolver. At the Southwestern International Pistol Tournament, held in San Diego, the record was twice surpassed in the same event when S. F. Griggers and Hank Adams, both "Native Sons," turned in new record scores of 191 x 200. Present record holding honors go to Griggers whose lowest hit out of 20 shots was an eight, while Hank's string included a "7".

In the next event of this same tournament Arturo Godinas, of the Mexico City Police Team, set a new National Record in another slow-fire match, this time for 20-shots with any center-fire handgun. The former record of 186 x 200 had evidently proven a hard nut to crack for five men were co-holders of the record which was first established in March 1936 by Emmett Jones of Los Angeles, during the National Mid-Winter Matches at Tampa. Since then Rodney Pease of San Diego, Pat Baldwin of Miami, Walter Walsh of the Department of Justice and Al Hemming of Detroit had all equaled Jones' score. Godinas' new record of 188 (a 95 and a 93 for his two 10 shot strings) should prove that the men from south of the Border are worthy competitors for the best we can put against them.

Very few tournaments have shown such consistent high

scores, both team and individual, as the Southwestern International. No less than five individual and three team national records were set there during the three day meet. One of these records has since been broken and so does not show on the list.

Los Angeles sent one lone representative to the All-American Pistol Tournament at Cincinnati last August, but they certainly picked the right one. During the .22 caliber Rapid-Fire event C. Gustine boosted the former record of 196 x 200, held by Gilbert Viau of Detroit, three points until today it equals the .22 Caliber Timed-Fire record and they both stand just one point short of a possible.

By the way, do you notice that there isn't a single possible among the present records? And yet a few letters have been received saying that some of the courses are getting too easy. Haven't noticed that myself.

"Old Reliable" Jake Engbrecht added another record in 1937 to those he already held. This time it was with the .45 Service Pistol over the National Match Course. In August Jake's running mate, Emmett Jones, the Los Angeles sleuth, boosted the former record of 281 to 283; then Engbrecht came along on October 17th and added two points to Jones' record to establish the present mark of 286, which incidentally is only six points under Engbrecht's record of 292 for the same course with any center-fire handgun.

On the National Record List Jake Engbrecht holds top position and one that will probably stand unequalled for a long time to come. He holds three individual records in his own right, and has been a shooting member of the Los Angeles team when it set five team records. Furthermore Engbrecht has fired the high score on three of these teams.

The Delaware and Hudson (better known as D. & H.) Police Team journeyed up to Camp Ritchie, Maryland, last July and set two national records in the four-man team division with center-fire guns that have successfully withstood all assaults to date. Over the National Match Course the D. & H. Team hiked its own previous record by six points with a team average of 280½. In the same type match over the shorter Camp Perry Course just one day later the D. & H. boys broke a record which had stood for four years. Their score of 1158 x 1200 in this match averages 289½, which is a remarkably good average for a four-man team.

The records for the five-man team division are particularly noteworthy due to four out of the five records being set this year under the hottest kind of competition. Both Detroit and Los Angeles Police Teams set records at the National Matches, while the Los Angeles Team used the San Diego Matches previously mentioned to set new marks in two events. Detroit's five-man team almost matched the D. & H. four-man team for the center-fire National Match Course when it had a team average of 280. A team average of 271 per member enabled the Los Angeles Team to set a new mark of 1355 x 1500 with the .45 Service Pistol and that is a record which will be tough to beat.

Out west the ladies not only get elected governors but they also shoot right along with the men folks. Not only do they shoot with them, but they give the men a real fight for tops on the Official Bulletin. Between Marion Semmelmeier, Esther Sichler, and Myrtle Pease setting records seems to be pretty much of a ding dong affair, although Marion Semmelmeier is on top, being the holder of three National Match Course records with scores no man could object to firing. In Esther Sichler's record of 284 over the Camp Perry Course with center-fire guns we find a nice possible 100 slow-fire and an almost equally good 96 for the timed-fire stage. This was one of only four slow-fire possibles fired in this event, and she beat 115 men competitors in the match, ranking 29th in the event.

NATIONAL PISTOL RECORDS

Slow-Fire Individual

Type Match	Record Holder	Address	Where Fired	Date	Score
.22 cal. 20 shots at 50 yards	S. F. Griggers	Los Angeles	San Diego	7-25-37	191
.22 cal. 20 shots at 25 meters	Chas. Askins, Jr.	El Paso	Camp Perry	1937	92
C.-F. 20 shots at 50 yards	Artura Godinas	Mexico City	San Diego	7-25-37	188
C.-F. 20 shots at 25 meters	John E. Rhodes	Philadelphia	Camp Perry	1937	89
.45 cal. 20 shots at 50 yards	J. J. Engbrecht	Los Angeles	Camp Perry	1935	175

Timed-Fire Individual

.22 cal. 20 shots at 25 yards	J. C. Todd	Los Angeles	Camp Perry	1936	199
C.-F. 20 shots at 25 yards	Chas. Askins, Jr.	El Paso	Tampa	3-9-36	198
	W. M. Beckett	W. Va. S. Police	Camp Perry	1936	198
	Paul Goulden	U. S. C. G.	Camp Perry	1937	198
.45 cal. 20 shots at 25 yards	Sgt. B. E. Clement	U. S. M. C.	Camp Perry	1935	195
	E. E. Jones	Los Angeles	Camp Perry	1937	195

Rapid-Fire Individual

.22 cal. 20 shots at 25 yards	C. Gustine	Los Angeles	Cincinnati	8-18-37	199
C.-F. 20 shots at 25 yards	R. F. Tate	San Antonio	San Antonio	7-4-36	195
.45 cal. 20 shots at 25 yards	Major J. Lienhard	U. S. M. C.	Camp Perry	1936	190
	Sgt. D. A. Dividio	U. S. Engineers	Camp Perry	1937	190

Camp Perry Course—Individual

C.-F. All firing at 25 yards	J. J. Engbrecht	Los Angeles	Los Angeles	6-27-26	296
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National Match Course—Individual

.22 cal. 50-yd. slow, 25-yd. timed and rapid	Arnvid Anderson	Bremerton	Camp Perry	1937	294
C.-F. 50-yd. slow, 25 timed and rapid	J. J. Engbrecht	Los Angeles	Los Angeles	6-27-36	296
.45 cal. 50-yd. slow, 25 timed and rapid	J. J. Engbrecht	Los Angeles	Los Angeles	10-17-37	286

Camp Perry Course Team Records

.22 cal. 2-Man Team	Elliott Jones	Greenwich, Conn.	Ritchie	1936	578
C.-F. 2-Man Team	F. L. Wyman	Tampa, Fla.	Camp Perry	1937	580
	J. J. Engbrecht	Los Angeles			
	E. E. Jones	Los Angeles			
.22 cal. 4-Man Team	D. & H. Railroad		Ritchie	1937	1158
.22 cal. 5-Man Team	St. Louis Police		Jefferson City	5-23-37	1444
C.-F. 5-Man Team	Los Angeles Police		San Diego	7-25-37	1453

National Match Course Team Records

.22 cal. 2-Man Team	C. Whitehead		Dallas	9-24-37	563
C.-F. 2-Man Team	Mark Cox				
	J. H. Overbaugh	Albany	Camp Perry	1937	562
	J. R. Herron	Albany			
.45 cal. 2-Man Team	E. E. Jones	U. S. C. G.	Camp Perry	1937	541
	Paul Goulden	U. S. C. G.			
.22 cal. 4-Man Team	U. S. Coast Guard		Detroit	8-15-37	1120
C.-F. 4-Man Team	D. & H. Railroad		Camp Ritchie	1937	1122
.45 cal. 4-Man Team	Los Angeles Police		Tampa	3-8-37	1072
.22 cal. 5-Man Team	Los Angeles Police		San Diego	7-25-37	1425
C.-F. 5-Man Team	Detroit Police Team		Camp Perry	1937	1400
.45 cal. 5-Man Team	Los Angeles Police		Camp Perry	1937	1355

Gallery Records—Individual

Slow-Fire					
.22 cal. 20 shots at 50 feet	W. F. Woods	Akron	Akron	3-14-37	182
.22 cal. 20 shots at 20 yards	Geo. Young	Buffalo	Buffalo	5-17-37	186
C.-F. 20 shots at 50 feet	A. Fellabon	Lakewood, Ohio	Akron	3-14-37	174
C.-F. 20 shots at 20 yards	L. Appleyard	Toronto	Buffalo	5-17-37	180

Three-Stage (Slow, Timed and Rapid Fire)

.22 cal. All firing at 50 feet	N. L. Hubbard	Akron	Akron	3-14-37	272
.22 cal. All firing at 20 yards	Dr. J. G. Kirk	Listowel, Ontario	Buffalo	4-17-37	268
C.-F. All firing at 50 feet	A. E. Hart	Cleveland	Akron	3-14-37	268
C.-F. All firing at 20 yards	J. G. Mills	Rochester	Buffalo	4-17-37	266

Team Matches

.22 cal. 4-Man slow-fire 20 yards	Toronto Rifle & Revolver Club	Buffalo	4-17-37	722
.22 cal. 4-Man Team (3 stage) 20 yards	Toronto Rifle & Revolver Club	Buffalo	5-17-37	1024
C.-F. 4-Man Team (3 stage) 20 yards	Toronto Rifle & Revolver Club	Buffalo	4-17-37	932

Ladies Records

Outdoor					
C.-F. 20 shots slow-fire at 50 yards	Esther Sichler	Los Angeles	San Diego	7-23-37	180
.22 cal. 20 shots slow-fire at 50 yards	Myrtle Pease	San Diego	San Diego	7-23-37	174
.22 cal. 20 shots slow-fire at 25 yards	E. Sichler	Los Angeles	Los Angeles	11-15-36	199
.22 cal. National Match Course	Marion Semmelmeier	Beverly Hills	Los Angeles	10-19-37	288
C.-F. National Match Course	Marion Semmelmeier	Beverly Hills	Los Angeles	10-19-37	278
.45 cal. National Match Course	Marion Semmelmeier	Beverly Hills	Los Angeles	10-19-37	256
C.-F. Camp Perry Course	E. Sichler	Los Angeles	San Diego	7-23-37	284

Gallery

.22 cal. 20 shots slow-fire at 20 yards	Dorothy Bissell	Williamsville, N. Y.	Buffalo	4-17-37	161
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BRIDGEPORT, CONN., FEB., 1938

Rifle Remington

STREAM OF HOT TARGETS PROMISES GREAT YEAR FOR MODEL 37 SHOOTERS

Smallbore stars warm up for National Mid-Winter and Metropolitan Matches

BRIDGEPORT, Conn.—As more and more Model 37 "Rangemaster" rifles get out in shooters' hands, increasing numbers of enthusiastic letters and hot targets keep pouring in.

It's just a few days more to the hard-fought New York Metropolitan matches, and a few weeks to the National Mid-Winter matches at St. Petersburg, Fla.

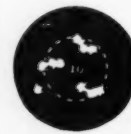
Lots of other big matches are coming up, too, and the Model 37 boys are getting set to knock out some targets that'll do their own talking.

The best scores and targets don't always come from the big matches. Judging from some of the targets we've seen, there'll be some new names and faces in the Rifle News this year.



Here's an example of the kind of targets we get from new owners of Model 37's. C. P. Quidas, of Morgantown, W. Virginia, made this fine group at 50 yards with his Model 37 and "Palma Kleanbore."

And here's another one . . . 20 shots at 50 feet by Henry L. Palley, of New York City, who agrees with Quidas that "Palma Kleanbore" and the "Rangemaster" are one swell combination.

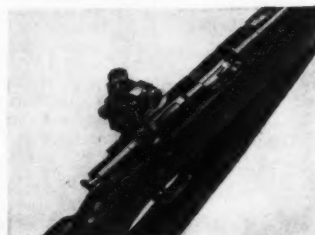


Model 37 of his . . . This 9X possible scored with iron sights at 100 yards may help explain why.

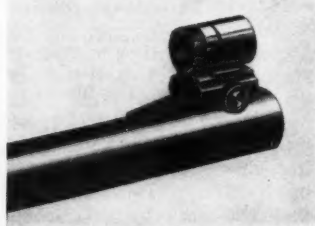
Fred Johansen still swears by "Palma Match" . . . and if you keep track of his scores, you'll see why. Fred thinks a lot of that



No danger of gun slipping from your shoulder with this broad, sharp checkered steel butt plate!



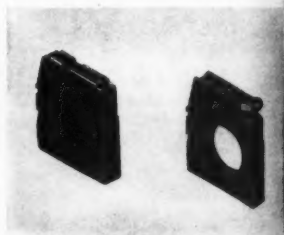
Heat treated working parts throughout. Velvet smooth action. Easily adjustable trigger pull.



Iron Sights at telescope height eliminate need for cheek-piece. Rifle fits better—aims easier.



Many a match has already been won with this new Remington micrometer sight with 1/4-minute click mounts.



Milled steel, not stampings! Left, the magazine. Right, single loading plate form that protects bullet lubrication.



Long or Short armed shooters know the value of this easily adjustable from sling swivel.



THE "RANGEMASTER"

MODEL 37. There are no extras, no gadgets to buy when you get the Remington Model 37. It's complete—heavy barrel, target sights, target stock, adjustable sling swivel and sling. Weighs about 12 pounds.

POSSIBLES and IMPOSSIBLES

by FRANK KAHRS



Have a couple of good friends out around Baylis, Illinois. Emory Hawick and C. L. Wood, who is a Life member of the National Rifle Association and active in smallbore shooting. He (Wood) acquired a Model 37 "RANGEMASTER" rifle recently and with hardly any preparation won the first match.

Those Model 37s are the "real McCoy" and in the hands of a shooter with confidence in his outfit will go places—no doubt about that.

We are looking forward to the National Mid-Winter Annual Smallbore Shoot at St. Pete, March 9 to 13. It won't be long now! Boy, we sure have something to look forward to each year since they started this affair some five or six years ago. We haven't missed one since and if you fellows in the cold places can possibly get away for a week or ten days, by all means plan to make this trip. You will never regret it. Can't you almost see those luscious oranges and grapefruit hanging from the trees, beautiful flowers everywhere and birds twittering away in the trees? But best of all, the warm breezes which blow in from the Gulf of Mexico and the sunshine that makes you feel like spending the rest of your days in this delightful land of sunshine and flowers. See you at St. Pete.

Left, the...
...ing plan...
...lubrication...
...ing from the programs we have received so far and announcements of dates already selected, 1938 is going to be a banner year for the smallbore man. One of the resolutions we made for the New Year was to try and take every shoot of any consequence anywhere. We are still going to try and keep that resolution; so if you fellows haven't sent me your dates, be sure to do this, as I want to be with you if possible. How about you boys in Kansas, N. C.—Atlanta, Ga.—Dallas, Texas—Glendale, California? Notice we have mentioned the south and the southwest only. It is winter here and we are heading for the warm places. We plan to take in the cooler spots in the summertime. But let those dates come along just the same.

We sure received a flood of inquiries for those color pictures of Bisley, England and Helsinki, Finland. They have been out working ever since the early part of December. As we can't have copies made of the originals, we will probably keep these going until they are worn out.

Don't forget to send in your application for 10X brassards. In order to get one of these, merely state that you have made a 10X possible with either REMINGTON rifle or REMINGTON ammunition and the date you made it, and we will send you one of these as soon as they are ready.

WESTERGAARD GETS 40-SHOT POSSIBLE IN INDOOR RECORD EVENT WITH "PALMA MATCH"

16-year-old Iowan wins prone event over top shooters

WHITING, Iowa

—Shooting against some of the country's toughest competition, young August Westergaard took first honors in the prone event at the American Indoor Record Match. His possible was the only perfect score in this event.

August is the son of the well-known C. T. (Westy) Westergaard . . . which helps explain his skill. He won with "Palma Match."



August Westergaard, son of C. T. Westergaard of Whiting, Ia.

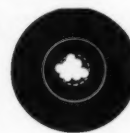


JOHANSEN MAKES 10X POSSIBLE WITH "PALMA MATCH"



JOLIET, Ill. — A 10X possible still has a thrill even when you've made as many as Fred Johansen.

The target above is a composite of Fred's 10X possible at 50 yards, scored with iron sights. Notice how those shots stay inside the X ring. Fred made this target with good old "Palma Match."



Howard stars in New York Match

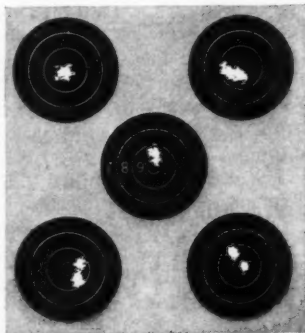
SCORES 50 x 50 OFFHAND AS GREENWICH TEAM WINS

GREENWICH, N. Y. — "Kleanbore" shooter Verne Howard of the Glenoga Rifle Club, Glens Falls, N. Y., stole the spotlight in the recent Tri-County Rifle Tournament here by shooting a perfect score in the offhand position.

Howard's total score of 191 was high for his team, but the team was nosed out by Greenwich, 914 to 909.



THE TARGET OF THE MONTH

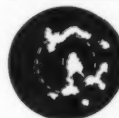


All the great offhand shooters aren't old-timers...and they're not all men! Here's a *ten shot possible* at 50 feet made by Mrs. Anna Horvath of Anaconda, Mont., with "Kleanbore" ammunition.

Each month Remington will produce what is in their opinion, "The Target of the Month." Only conditions: 1. It must be fired under N. R. A. rules. 2. Be witnessed by two people. 3. Be fired within one month previous to the time it is mailed to us. 4. Be fired with Remington ammunition or rifle. Send in "hot" targets to Frank Kahrs, Remington Arms Co., Inc., Bridgeport, Conn.

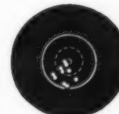
FINE TARGETS WITH "PALMA MATCH" AND "PALMA KLEANBORE"

Mrs. Bartlett scores 200 x 200 with 16 X's



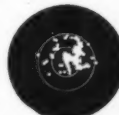
Mrs. L. B. Bartlett of San Antonio rates right on top among women shooters anywhere. The 16X possible at 100 yards shown here is only one of several possibles we have seen scored by Mrs. Bartlett. The ammunition? "Palma Match."

Karl Edburgh does some ammo. testing



Speaking of "Palma Match," Karl A. Edburgh of Berwick, Penna., recently tried some at 100 yards with a muzzle rest. Karl says that conditions were not conducive to fine grouping, but the group measures 3/8" center to center . . . widest shots.

J. P. Prince agrees "Palma Kleanbore" is great ammo.



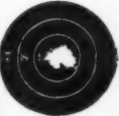
J. P. Prince of Birmingham, Ala., went out to the range with 65 "Palma Kleanbore" cartridges recently. Here's a composite of his group, including sighters, at 100 yards. Sixty-five consecutive tens is some shooting! Then Mr. Prince took some more "Palma Kleanbore" to the City Championship Match, and came away with first honors in the 50-Meter Scope event. His 14-year-old daughter, Betty, won the girls' match with the same ammunition.

Keleher proves skill at 4-positions



Jos. J. Keleher, Executive Officer of the Bishop, Cal., Rifle and Pistol Club, scored this 198 in one of the club's weekly four-position matches. Score—prone—50, sitting—50, kneeling—49, standing—49. Ammunition: "Kleanbore."

Bud Prins shoots center out of target



"Kleanbore" shooter Bud Prins of Holland, Mich., just put five shots on this target . . . left nothing at all of the 10-ring. Fired at 50 feet.

N. R. A. DIRECTORS' MEETING

THE annual meeting of the Board of Directors of The National Rifle Association will be held in the Hotel Mayflower, Washington, D.C., on February 4th. All N. R. A. members in the vicinity are invited to be present at the meeting, and listen to the various discussions. Voting will be confined to the Directors of the Association. The meeting will begin at 2:00 p. m. and will be followed by the Annual Banquet at 7:30.

PREPARE FOR CHICAGO DEWAR

THE Annual Indoor Matches, sponsored jointly by the University of Chicago and the Illinois State Rifle Association, will be held over the week-end of April 1-3 inclusive. The meet will be registered by the National Rifle Association of America and will consist of a generous schedule of events to be fired at 50 and 100 yards, indoors.

Saturday morning, April 1st, will be devoted entirely to the firing of the Big Ten Inter-Collegiate Championship Matches, after which a comprehensive series of All Comer matches will get under way.

Major Francis W. Parker, Jr., 1937 Executive Officer of the National Small Bore Matches at Camp Perry, heads the staff of officers who will run off the matches. He will be ably assisted by Russell Wiles, Jr., of the Illinois State Association.

These matches are made possible only by the far-sightedness and generosity of the University of Chicago authorities who have extended the facilities of their magnificent Field House for use on this occasion. The Field House is large enough to accommodate thirty-five firing points located upon six foot centers; with well lighted and mechanically ventilated ranges up to 100 yards. Mr. T. N. Metcalf, Athletic Director of the University, is co-operating to make this event surpass all previous ones.

Dining room and locker facilities are available to all contestants. Accommodations for out-of-town shooters may be arranged through the University of Chicago Athletic Department. Arrangement will be made to accommodate a considerable number of male contestants in the men's dormitories. Additional accommodations are available in hotels near by at various rates.

For a program including detailed information, write to Russell Wiles, Jr., University of Chicago, Athletic Department, Chicago, Illinois.

A PROPERLY LIGHTED RANGE

THE John Burroughs School Rifle Club was started with three boys in the tenth grade in the spring of 1934. They joined the Greater St. Louis Rifle League in the fall of 1934 and in their first year of competition tied for third place. The club became a member of the National Rifle Association in 1935.

The only available indoor space for practice was the gymnasium. This was provided with a 6' x 6' sheet of 1/4" boiler plate mounted on heavy industrial casters. This answered temporarily, but as the club membership grew it soon became apparent that a permanent range must be provided.

The problem was discussed with the faculty in May of 1935, and all agreed that a permanent indoor range was essential if the school was to become a factor in the League.

After surveying all possible indoor facilities of the school, it was decided that the only location available would be in an unexcavated portion of the basement under the main building.

The entire area around the firing point was covered with concrete 3" thick with a wood float finish and the retaining walls were constructed of secondhand brick with a cement plaster mortar. The firing lanes were divided by 4" x 4" yellow pine upright posts embedded in concrete to 2'6". The area at the firing point, approximately 6'6" by 18', was covered with 4" of dry sand and on top of this was placed a covering of 10 ounce white canvas, which was to provide a comfortable and serviceable pad while firing.

As this rifle range is in the basement, not provided with any natural daylight, it was necessary to provide a lighting system that would be effective yet not interfere with the shooting. All lights at the firing point are behind the shooting mat and shaded so that the reflection will not be present on the gun sights. Benjamin E-1822 standard angle reflectors are used, four mounted above the target and four below the target, each fixture containing a 75 watt lamp. This provides a high intensity on the targets free from all shadows and cross reflections and can be considered superior to natural daylight as the light is uniform at all times.

Total cost of construction, including excavation, was \$347. Part of the funds required were donated by the Fathers of the Rifle Club Members; the balance was advanced the club by the school. This advance will be repaid through club dues, rental of rifles and profits derived from the sale of ammunition and supplies.—DON G. COOMBS.

1937 NATIONAL RANKINGS

AS WE go to press the 1937 National ranking of pistol shooters shows the following on top with averages as noted below, for the three divisions, all averages being based on scores fired over the National Match Course:

Major Wm. P. Richards	285.81
Walter R. Walsh	285.62
Leo Allstot	285.16

Center-Fire (Except .45 Caliber)

Al Hemming	283.18
J. R. Herron	280.36
Sgt. J. B. Jenson	279.99

.45 Caliber

J. J. Engbrecht	274.32
Major Wm. P. Richards	271.40
C. M. Corbin	271.33

Deaths Reported

OSCAR F. MOSSBERG, founder and president of the well known rifle manufacturing firm O. F. Mossberg and Sons; at his home in New Haven, Connecticut, two days after Christmas. Always a firm believer in mass production at minimum cost, Mr. Mossberg pioneered in the introduction of low priced repeating rifles, suitable for target work, and was affectionately known as the "Henry Ford of the rifle manufacturing industry." He was a life member of the N. R. A. and leaves two sons to carry on, both of whom have long been actively connected with the firm.

WILL WIRSING, septuagenarian gunsmith, who claimed intimate acquaintance with Cherokee Bill, Belle Starr, the Dalton boys and others of the famed frontier day gangs, but who proudly boasted that he had never sold an outlaw a gun; at his Fort Smith, Arkansas, home on January 2. A photo of the youthful looking Mr. Wirsing at work in his gun shop, together with a story of this old timer's life, written by J. N. Parker, appeared in the September 1937 issue of the RIFLEMAN.

CHARLES D. BELL, Secretary of the newly organized Croton River Rifle Club of Brewster, N. Y., assistant manager of the Uapyre Corporation in Brewster, native of nearby Pleasantville; at the Northern Westchester Hospital on December 1.

F. J. EDER, gunsmith, active member of the N. R. A. and of the Aliquippa Bucktails; at his 16th Street home in Aliquippa, Pennsylvania, on November 27.

FIRST HAWAIIAN TOURNAMENT

WITH the famous "Maui No Ka Oi" (meaning Maui is the best) hospitality predominating in an atmosphere of friendliness and congeniality, the first territorial law enforcement officers' pistol tournament was fired on a shoulder-to-shoulder basis on the Maui Police Pistol Range at Paukukalo, island of Maui, on December 11, 12, and 13, bringing to a thrilling climax a pistol contest for the Governor Lawrence M. Judd trophy started five years ago on a postal match basis.

Police officers from the island of Hawaii, many of whom fired at Camp Perry National Matches this year, took permanent possession of the Governor's trophy by winning it the third time, beating the police officers from Honolulu who already had two legs on the trophy.

Hawaii County Police Six man team fired a team score of 1847 out of a possible 1890, the Honolulu Police Team scored 1832, and Maui County Police Team scored 1792. The match was fired over the Army Dismounted course at 25 and 15 yards.

Individual high scorers in the Governor's Match were first, Officer Charles Martin, Hawaii Police, 314, a local record; second, Officer Theodore Awana, Honolulu Police, 312; third, Officer Shigeru Miyada, Hawaii Police, 311, all awarded gold, silver, and bronze medals respectively.

With the retiring of former Governor Lawrence M. Judd Trophy from competition, comes the announcement by Colonel P. M. Smoot, adjutant general, that Governor Joseph B. Poindexter, present governor of the territory, has donated a trophy to perpetuate the pistol competition among the county police departments. A new course of fire is contemplated to bring local pistol shooting in step with national events.

Several weeks prior to holding of the pistol tournament a series of very successful small bore and .30 caliber rifle matches had been conducted by the Hawaiian Territorial Rifle Association, organized in April of last year.

Highlights of the annual report of President A. M. Glover, include in addition to the match results, the encouraging notice that the Association Officers have secured from the Parks Board permission to construct ranges on the City Parks Property at Kokohead Crater. Negotiations are already underway between the Board of Supervisors and the Association officials and 1938 should see a municipal range equal to any in the country.

Officers of the Association include besides President Glover, A. T. Clardy, Vice-President, Ralph Miller, Executive Officer, E. J. Stephenson, Secretary-Treasurer and Sgt. D. T. W. Yat, Publicity Director.

THROUGH THE SCOPE

Telegrams from Howard Smith and George Cooper of the Des Moines (Iowa) Rifle and Revolver Club tell us of the unfortunate loss of that club's indoor range which was completely destroyed by fire early in January. The irony of this loss is that only a few days prior to the fire the club had inaugurated a school of instruction in marksmanship open to the public.

Greetings and felicitations to our good friend Colonel C. E. Stodter—former Director of Civilian Marksmanship and 1934 executive officer of the National Small Bore Matches—who won the offhand muzzle loading rifle event and placed second in the "duelling pistol" match, conducted by the Southern California Arms Collectors and held near Orange, California, on October 17th.

Secretary Jesse F. Cline, Las Banos (California) Rifle Club, reports that the club was very active during the year 1937, having competed in fourteen .30-'06 matches, including feature events with the Chowchilla and Madera Rifle Clubs. Also Postal Matches with the Warrenton (Oregon) Rifle Club and the N. R. A. Interclub League Matches. The indoor program consists of a series of weekly events with .22 rifles.

The Happy Valley Gun Club of Hendersonville, Tennessee, an infant of two months, held its first monthly shoot at the home range twelve miles from Nashville, Tennessee, on Highway No. 31-E, Sunday, December 12th. This shoot was the first in a series of monthly events to be held regardless of weather conditions. Future Club shoots will be held on February and March 20th. All shooters in the vicinity of Nashville are invited to attend. The next program will include several rifle matches. For programs of the matches write George A. King, Hendersonville, Tennessee.

The Bronx (New York) Revolver Association meets every Monday and Wednesday evening at the range of the 105th Field Artillery Armory, 166th Street and Franklin Avenue. Particulars in regard to membership may be obtained by writing to the Secretary, Otto G. Franz, at 464 East 159th Street, New York City.

The Franklin (New Jersey) Revolver & Rifle Association, organized in October 1937, conducted a Christmas Turkey Shoot on December 19, at the range located in the Franklin Quarry. Luck targets were used and twelve matches were shot, in which seventy-three rifle and revolver shooters took part. The Club was organized to encourage and promote better shooting among the citizens of Sussex County, N. J., and is interested in arranging Postal Matches with other clubs. The Secretary is William Palsulich, Franklin, N. J.

The Floridian Pistol Club of Tampa elected officers at its regular annual meeting on January 6, 1938, to serve for the ensuing year. C. A. Brown, Thomas Perez, and Kenneth Kittleson were reelected to serve as president, executive officer, and secretary-treasurer, respectively. The office of vice-president was held by C. Williams, but as he was nominated as chairman of the board of directors, C. Verne Klintworth was elected to the office of vice-president.

Reverend Guy M. Wilson, active Secretary of the Zelenople (Pa.) Rifle Club, reports a most successful 1937 season for that N. R. A. Club. This outfit took part in thirty-seven matches of which twenty-two were Shoulder-to-Shoulder events. During the year the Club also staged two important tournaments, each of which attracted about one hundred competitors.

Most timely postal of the month comes from I. G. Nichols of Salt Lake City, Utah, who writes that he has just read the article on "Federal Firearms Registration" (January issue) and agrees with it 100%. He says: "I had an experience along this line myself, except that I had my name scratched on the magazine of a 30 Luger, sold the gun and nearly a year later the gun was found in a car loaded with bootleg liquor. Naturally the police came after me and I had to prove my alibi. But it could and would work the same with Federal Registration."

A letter from Secretary R. B. McLaughlin of the McPherson (Kansas) Rifle and Pistol Club tells how that club by expending some ingenuity and a lot of energy now has a range equal to any. "The best bet we could find was a basement in a lodge building. However, it had never been floored, and was full of junk left by tenants of the store rooms on the first floor. We made the owners a proposition, then went to work. An experienced concrete man was hired to supervise the laying of the floor and a mason to lay up the entrance walls. All other work was done by the club members and don't think some of the desk workers didn't have sore backs from wheeling concrete and shoveling sand. The result: A room 25' x 115' which provides for both 50' and 75' ranges and a club room where we can tell each other how good we are before we go on the range. A gas circulator furnishes heat and an exhaust fan at the firing point takes care of the ventilation."

After a long lay-off following the world's championship small bore matches, held in Finland last July, Dave Carlson has returned to the firing line determined to reestablish himself as one of the nation's top-notch small-bore shots. At the first monthly indoor shoot sponsored by the Connecticut Rifle Association and held at the Winchester range, young Carlson won the 40 shot any sight 50 yard event with a possible score and 36x's. In the 20 shot metallic sight match at 50 yards, Dave also turned in a possible to place second, being outranked only by old timer Guy Morehouse, who had an "extra X."

From S. E. Ellis, president of the Longview (Washington) Rifle Club, we learn that young Stanley W. Josephson, Longview junior marksman and a member of the R. A. Long High School rifle team, has just been nominated for appointment to West Point by Representative Martin F. Smith of the third Congressional district. We are also pleased to hear that Representative Dudley White has recently nominated for an Annapolis appointment Young Bobby Lowell, Bowling Green, Ohio, student, who for the past several years has so ably assisted the N. R. A. staff at our Camp Perry Office during the National Matches. Both these boys rate as "the tops" in their communities—any community—and each is expected to give a good account of himself both in the class room and on the athletic field as well.

FLORIDA MID-WINTER SHOOT'S FEATURE MARCH CALENDAR

AS in previous years the outdoor shooting season for small bore riflemen and pistol shooters will be formally opened next month when a trio of important tournaments will be held in southern Florida.

First comes the National Mid-Winter Small Bore Tournament at St. Petersburg, beginning March 9 and concluding the 13th. This is the meet which has for the past seven years attracted the cream of small bore riflemen from a score of states and which this year is expected to establish a new attendance record as well as many new record scores.

The 1938 program includes seven new events, several of which are open only to non medal winners at previously conducted registered tournaments. The established championships which have proven so popular in past years will of course be open to "all-comers." The St. Petersburg small bore tournament has come to be regarded not only as one of the important meets of the year but also as one of the most enjoyable from the social standpoint. It brings together many of the nation's best known small bore shooters and provides the opportunity for riflemen to enjoy outdoor shooting in perfect comfort during mid winter.

The official program, a copy of which may be had by writing to T. F. Bridgeland at St. Petersburg, contains information relative to accommodations and rates as well as the complete schedule of matches.

Second of the trio of Florida tournaments is the Miami Pistol meet sponsored by the Coral Gables Police Pistol Club and to be held over that club's newly equipped range, near Miami, beginning March 10th. This tournament which runs for three days will serve as a timely tune-up for East Coast pistoleers who expect to attend the annual Mid-Winter championships at Tampa several days later.

The National Mid-Winter Pistol Matches provide for a guaranteed cash prize pool of \$1,000 plus medals and trophies valued at approximately \$750.00. In addition, through the courtesy of the Cuban Government, as many as sixty competitors will be invited to compete in the International Pan American Matches at Havana, Cuba, immediately following the National Mid-Winter, at very little extra expense. An old fashioned Florida Fish Fry, climaxed by a gala banquet and dance on the concluding night will complete the program. Detailed information about the Tampa Tournament is contained in the official program, a copy of which Smitty Brown will gladly send to anyone who writes to him at P. O. Box 253, in Tampa.

COMING EVENTS

CONNECTICUT

February 12: The annual meeting of the Connecticut State Rifle & Revolver Association will be held Saturday, February 12, 1938, at the Winchester Club House, New Haven, Conn. Dinner at 6:30 p. m., meeting at 7:30 p. m., rifle matches at 50 ft., no entry fee, will start about 5:00 p. m. with many small prizes to be awarded the winners.

March 4-5-6: 10th Annual Gallery Championship Match at New Haven. Sponsored by the Connecticut State Rifle and Revolver Association. For programs write Mr. E. E. Cooke, Meriden, Connecticut.

March 19-20: First Annual Revolver and Pistol Team Matches at New Haven. Sponsored by the Connecticut State Rifle and Revolver Association. For programs write E. E. Cooke, Meriden, Connecticut.

FLORIDA

***March 10-11-12:** Flamingo Open Pistol Tournament at Coral Gables. For programs write Mr. A. T. Kelley, Police Department, Coral Gables, Florida.

***March 9-13:** National Mid-Winter Small Bore Rifle Tournament at St. Petersburg. Sponsored by the Florida State Rifle and Revolver Association. For programs write T. F. Bridgeland, 225 4th Street, North, St. Petersburg, Florida.

***March 15-19:** National Mid-Winter Pistol Tournament at Tampa. Sponsored by the Florida State Rifle and Pistol Association. For programs write C. A. Brown, Box 253, Tampa, Florida.

March 22-23-24: Pan-American Pistol Matches at Havana, Cuba. For programs write Francisco Enriquez, Edificio Bacardi, Havana, Cuba.

ILLINOIS

February 27-March 6: Motor Boat and Sports Show at Chicago, Illinois. A series of rifle and pistol matches will be conducted by the Illinois State Rifle Association during the show.

***April 1-2-3:** University of Chicago Indoor Dewar sponsored by the University of Chicago and Illinois State Rifle Association. For programs write Russell Wiles, c/o Chicago University Athletic Dept., Chicago, Ill.

April 8-9: Morgan Park Military Academy Inter-scholastic Rifle Match at Chicago. Sponsored by the Morgan Park Military Academy. For programs write Major Paul Franzen, Morgan Park Military Academy, Chicago, Illinois.

***June 10-11-12:** Camp Grant Memorial Rifle and Pistol Tournament at Rockford, Illinois. Sponsored by the Illinois State Rifle Association. For programs write Major Lester F. Stewart, 710 S. Main St., Normal, Illinois.

MASSACHUSETTS

February 27: Fifth Annual Team and Individual Rifle Matches sponsored by The Beverly Rifle and Revolver Club.

April 2: Third Annual Junior Rifle Matches, team and individual, sponsored by The Beverly Rifle and Revolver Club. Programs will be available two weeks prior to each match and may be obtained from Mr. David C. McNeill, 33 Beckford Street, Beverly, Mass.

MISSOURI

March 11-12: Midwest Indoor Camp Perry at Boonville, Missouri. Sponsored by the Kemper Military School. For programs write Captain Joseph P. Clelland, Kemper Military School, Boonville, Missouri.

April 25-29: Squadded Pistol Matches to be held in connection with the Annual Horse and Sportsman Show at Kansas City, Missouri. For programs write Sgt. D. E. Bates, Department of Police, Kansas City, Missouri.

NEW JERSEY

April 24: Off-Shoulder Championship at Swiss Hall, Union City, New Jersey. Sponsored by the Metropolitan Rifle League. For programs write Edward Smelter, 3 Agate Avenue, Ossining, New York.

NEW YORK

February 6: Metropolitan Rifle League Preliminary Match at the 102nd Quartermaster Armory, 355 Marcy Avenue, Brooklyn, New York.

February 13: Metropolitan Rifle League Two and Four-Man Team Matches at the 102nd Quartermaster Armory, Brooklyn, N. Y.

February 20: Metropolitan Rifle League Indoor Championship at the 102nd Quartermaster Armory. For programs of these events write Edward Smelter, 3 Agate Avenue, Ossining, N. Y.

***April 16-17:** Niagara Frontier Pistol and Revolver Championships at Buffalo. Sponsored by the Buffalo Revolver and Rifle Club. For programs write Wallace A. Beattie, 79 Stevens Avenue, Buffalo, New York.

OHIO

April 23-24: North Central Ohio Rifle and Pistol Tournament at Ashland, Ohio. Sponsored by the Ashland Rifle and Pistol Club. For programs write Stuart M. Martin, Ashland, Ohio.

May 22: Third Annual Metropolitan Open Pistol Championships at Cincinnati. Sponsored by the Indian Hill Rangers. For programs write A. H. Chatfield, Jr., c/o Indian Hill Rangers, Madeira, Ohio.

TEXAS

February 20: Mid-Winter High Power Rifle Match at Laredo, Texas. Sponsored by the Laredo Rifle and Pistol Club. For programs write H. B. Hopkins, Box 174, Laredo, Texas.

WISCONSIN

February 15: Great Lakes Postal Rifle Matches sponsored by the Ladysmith Rifle Club. Entries close February 15th with targets due back March 10th. For information write L. P. Walsdorf, Ladysmith, Wisconsin.

PENNSYLVANIA

February 20: Fourth Annual Lebanon Valley Championships at Lebanon, Pennsylvania. Sponsored by the Lebanon Rifle and Pistol Club. For programs write W. J. Thompson, 535 Chapel St., Lebanon, Pa.

CALIFORNIA

February 6: Lincoln Memorial Pistol and Revolver Matches at Richmond, California. Sponsored by the Richmond Rifle and Revolver Club. For programs write E. J. Martin, 325 12th Street, Richmond, California.

MISSOURI

February 6: Fourth Annual Southwest Missouri Indoor Tournament at Monett. Sponsored by the Monett Rifle and Revolver Club. For programs write J. J. Josserand, 620 Fifth Street, Monett, Missouri.

OHIO

February 26-27: Mid-West Individual Gallery Matches at Fort Hayes, Columbus, Ohio. Sponsored by the Ohio State Rifle and Pistol Association.

April 2-3: Ohio Gallery Matches at Fort Hayes, Columbus, Ohio. Sponsored by the Ohio State Rifle and Pistol Association. For programs of these events write F. L. Spencer, c/o Zeppelin Arms Company, Akron, Ohio.

NEW YORK

March 5-6: Central New York Pistol and Revolver Championships at Utica, New York. Sponsored by the Central New York Pistol and Revolver League. For programs write George A. Goodrich, 309 Arcade Building, Utica, New York.

* Denote Registered Tournament.

CHALLENGES

The 19th Maccabee Rifle Club of Kalamazoo, Michigan would like Postal Matches with Rifle Clubs in countries other than the United States. 10 man team with 5 high scores to count. 10 shots prone and 10 standing, on official N. R. A. targets at 50 feet with metallic sights. Targets exchanged. Write Neal Marks, Secretary, 816 Harrigan Court, Kalamazoo, Michigan.

BULLET-LUBRICATION SIMPLIFIED

By PERRY D. FRAZER

WITH a great deal of pleasure, and with profit, I have read the two latest manuals on reloading—"Handloader's Manual," by Earl Naramore, and "Complete Guide to Handloading," by Philip B. Sharpe. Both are excellent books, and the beginner will find in them advice it will be to his interest to study carefully.

There is just one thing both writers have treated less carefully than they might have done, or so it seems to me—the lubrication of lead bullets with a *minimum of mess and bother*. The equipment is simple.

Buy a new tinned pie plate, and never heat it enough to cause the bottom to warp or bulge. The bottom will be about seven inches in diameter. Stand in it, a half-inch apart, as many lead bullets as it will hold. With care this may be done without upsetting any bullet—and stampeding most of the others. A plate will hold about 150 .25-caliber bullets.

Pour melted lubricant around the bullets until it covers all the cannellures. Let stand until the lubricant is nearly cold but still soft enough so the cake will not split when you start cutting the bullets out.

Procure a piece of brass or aluminum tubing a foot long and just large enough to permit a bullet to slip through it quite freely. On one end of this tube rivet a bicycle bell or any small cup, previously bored to fit the tube. (The archaic so-called "kake-kutter" is too clumsy and messy.)

Push the tube down over a bullet, then another one, and repeat until the cup fills with bullets, then tip them over into a paper box. The last dozen bullets are then pushed out of the tube with any handy rod.

You are now ready to lubricate any number of bullets without mess and profanity. You have a mould, and with care you can keep it, as a mould, indefinitely. I refer to your pan of hard grease, with its handy holes. Fill these made-to-order holes with other bullets—they cannot tip over, now. Set the pan over a gas flame, turned as low as possible so it will warm the lubricant very slowly, without scorching it. When the grease begins to turn fluid, turn off the gas, and let the pan stand until the grease is cold enough to cut out the bullets, as mentioned above. Of course the pan should be level, so that all bullet cannellures will be covered evenly. Remove the pan to your bench and cut out the bullets. Cut them carefully, so the cake of grease will not be messed up. This is the secret of the process—to start lubricating with a pan of cold lubricant, already provided with

holes to stand the bullets in without having them tip over.

A pan of lubricant will take care of thousands of bullets before more grease need be added. Add fresh lubricant, when needed, while the mass is fluid—no more than will cover all cannellures. Merely cover the pan, when not in use, with a cloth, to keep out dust.

Make up lubricant in this way: Melt two ounces of carnauba wax in a small pan over a vessel of boiling water. Add four ounces of yellow beeswax, then twenty ounces of clean beef tallow, previously cut into small pieces. Stir until well mixed, skim off the surface, and pour into a can, for stock. For summer use, add a little carnauba wax; for cool weather, thin with tallow.

Carnauba wax alone is too hard for a lubricant. It is slippery rather than tenacious. Beeswax helps it cling to lead, and tallow combined with the two other ingredients renders them slightly sticky, so the mixture will not flake off cold lead. The only other thing to keep in mind is to have the mixture just soft enough so it will not be brittle at low temperatures nor fluid enough to melt in the sun in summer. Carnauba wax may be obtained from any wholesale druggist.

If you have any doubts about the worth of this lubricant, fire a few shots from a dry, clean barrel, run a new patch through the barrel and examine it under a glass, then pass the cloth a couple of times between your fingers. The residue will be soft and gray. Examine the bore after the next shot, then again at the end of the day.

AN OPEN LETTER TO THE .25-CALIBER RIFLEMEN OF AMERICA

I AM addressing this letter, through the pages of THE AMERICAN RIFLEMAN, to all .25-caliber enthusiasts, and am in hopes that at least 1000 of the clan will respond.

Of all my rifles my favorite is the .25-caliber, and at present I use the .30-'06 necked down by Niedner, which is similar to the .257 Roberts. Most of my shooting is at groundhogs, crows, and other vermin, for which I desire a bullet that is not to be had among the commercial products of today; hence this letter.

I would like a bullet similar to the fine Sisk Hornet and Lovell bullets, to weigh 75 grains, and having a sharp soft-lead point. In my travels I have stopped at Iowa Park, Texas, and talked the matter over with Mr. R. B. Sisk, and I find that he is receptive to the idea, and would go ahead if he were sure that the demand would warrant his placing this bullet in production. We cannot hope to obtain it from the large loading companies, for they will not make anything except what can

be generally used for various purposes. That is why they insist upon making those of their .25-caliber bullets as we would like, in hollow-point only, so that they can be loaded in all types of cartridges, for box, tubular, or any other magazine. The soft-point cannot be so used.

Mr. Sisk can produce such a bullet to sell at from ten to twelve dollars per thousand, and if there is sufficient demand, he is ready and willing to do so. We cannot hope to obtain it elsewhere. In my .30-'06-25, I feel certain that with the newer powders I can obtain around 3500 foot-seconds velocity, and in my humble opinion, with such a bullet we will be able to obtain 220 Swift performance in the .25 caliber, and with much gained in killing effect, longer barrel-life, and other advantages which we cannot claim for the present .25-caliber loadings. Mr. N. H. Roberts has commented upon the lack of such a bullet; he and I have talked it over, and he feels as I do, that a bullet such as this, and at that price, will meet with a ready demand and will easily warrant Mr. Sisk's placing it in production.

It is my request that all who agree with me address a letter to that effect to Mr. R. B. Sisk, Iowa Park, Texas; and if possible place a bona fide order with him for a shipment of these bullets. In this way he will be justified in going ahead with production, and from him we can obtain the bullets regularly. He has already demonstrated the quality and worth of his bullets in the .22-caliber variety that he now produces.

WALKER GREER,
Staunton, Virginia.

DESERT LOAFER

(Continued from page 19)

meant for him."

The only road passed within fifty yards of the Mexican's house. I borrowed a couple of goose loads and Jimmy's gun, then opened the window and thrust the gun out, not meaning to take a shot without a return if the fellow came forth with a gun, or thrust one out at the door. Jim drove steadily and not very fast, so as to give me a chance to shoot. Nobody was to be seen about the place, not even the red spaniel. The season was about over, and we never went back again. Maybe we will sometime. Anyhow, we agreed that we'd had a great day, and drove home in perfect contentment. I kept two mallards, which were the fattest ducks I had seen that year. We didn't know until afterwards that the pond had been baited and the ducks well fed. That was the finest duck shoot that I'd had in New Mexico, and the second time I'd bagged a limit.

TRY f. 32

(Continued from page 15)

experienced in any regular pistol shooting. At 20 yards—the indoor distance—the results would be even better, or a larger aperture could be used for the same results. In taking the pictures the camera was held slightly to one side so that the sights and the bull would show separately, while a piece of white cardboard was held back of the gun to make the sights show up clearly.

The first picture, at the top, was made with the stop set at f. 4.5, the camera being properly focused to make the sights show up clearly. The target is that gray smudge on the backstop. In the second picture everything is the same as in the first, except that the stop was set at f. 11—resulting in quite an improvement. Number 3 was made with the stop at f. 16, and is still better, while Number 4 was taken with stop at f. 22 and is better still. But feast your eyes on picture Number 5 at the bottom! There is what good old f. 32 does for us.

If you will put a strong magnifying glass on that bottom picture you will find that both the sights on the gun, and the target, are as clear and sharp as you could wish; which shows what happens when the "depth of focus" is increased by using a very small aperture.

I feel like kicking myself for not having used some sort of peep-hole on my shooting glasses for the past ten or fifteen years, and keeping in the shooting game; for with a peep-hole of the right size we can "see 'em" even better than we did when our eyes were better.

Recently shooters have been trying aperture rear sights on their slow-fire pistols. I've tried them, along with tube sights, tubeless telescope sights, and even low-power scopes; but they won't work. The aperture is the thing, but the place for it is right up close to the eye, either on your glasses if you wear them, or in a disk of metal fitted into the opening in a spectacle frame in place of the usual lens. Such an arrangement will enable any pistol shooter to do better work, and for the old shooter it does the same kind of a job that the scope sight does on a rifle.

There are several ways in which you can try the idea out without much trouble. Perhaps the simplest is to cut out a thin piece of brass or tin about 1/2-inch wide and long enough to be bent over to fit the edges of the lens in your glasses. Then note about where the pupil of your eye comes on your glasses when you sight naturally by looking over your pistol aimed at a mirror. Punch about a 1/32-inch hole in the piece of metal at that point. In use the device may seem a bit awkward at first, but stick to it: it is the

one and only way in which to really get sharp definition.

After you've become accustomed to the peep for slow-fire, try it at rapid fire. The range is much shorter, and therefore you can use a larger aperture and get good results. In fact the end to work for is to find the LARGEST hole that will give the depth of field you need, remembering that you want to admit all the light you can and still get the clearness desired.

Don't let anyone lead you to doubt the fact that the peep over the eye is the answer to this sighting problem. In the pictures I show herewith you have proof that will take a lot of explaining by the sceptical.

Incidentally, Elliott Jones has used a peep-hole over his eye for a number of years—which may have something to do with his being the Number 1 slow-fire pistol shot of the United States.

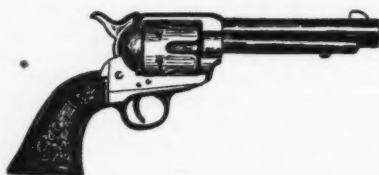
SMALL BORE RANKING

(Continued from page 10)

place in one of the registered events. At Perry, Allyn kept up the good work already started by defeating Woodring for first place in the 50-meter match after a lengthy shoot-off with an 800 possible, winning the 50-yard match, and placing third in the Preliminary Dewar, eleventh in the Critchfield Aggregate and thirteenth in the U. S. Trophy.

Top position among the competitors of the fair sex goes to Dorothea Kelly of the well known Zeppelin Rifle Club of Akron, Ohio. Mrs. Kelly faced fewer competitors than several others, but her consistent shooting in registered events gives her a ranking percentage of .789 and fortieth place on the National Ranking List. Her best showing came during the Zeppelin Tournament against many of the nation's outstanding riflemen. In a 50-yard any sight match here she scored a possible 400, only to be outranked by two other possibles, and so had to be content with third place. This was better luck, though, than she had in a similar match at the Ohio State Tournament, where 400 was only good for ninth position.

As many riflemen consider metallic sight shooting a separate branch of the game, we are listing here the ten high iron sight competitors for 1937, using the same system of ranking as that used for the main list. Only open individual metallic sight short and mid-range events have been used in compiling this list.



Each shooter competed in ten or more events, except in the cases of Dr. Gardner and Merle Israelson, who were prevented from attending several tournaments due to their Bisley trip. Both competed at Camp Perry, and we feel that their showing there and at Bisley entitled them to consideration.

1937 Metallic Sight Ranking

No.	Name	State	Comp. Faced	Rank
1	Gardner, Dr. R.,	Ohio	1592	.954
2	Woodring, W. B.,	Illinois	1936	.953
3	Patriquin, W.,	Pennsylvania	2556	.923
4	Allyn, H. D.,	Massachusetts	1845	.917
5	Hamby, Charles,	Georgia	1919	.910
6	Brown, Edwards,	Illinois	1969	.901
7	Schweitzer, Wm.,	New Jersey	2154	.895
8	Johansen, Fred,	Illinois	1719	.881
9	Israelson, Merle,	Ohio	894	.870
10	Hamley, E. C., Jr.,	California	534	.868

A paragraph could be written on every shooter on the 1937 Ranking List, as practically all of them are outstanding riflemen. We must stop somewhere, though, as obviously it is impractical to cover them all. Small-bore shooting continues to grow, and each year our list will doubtless find new names scattered throughout. Those down away from the top will fight hard during 1938 to better their position, while those on top this time will be fighting just as hard to hold their ground. More power to everyone—let's see who will be No. 1 for 1938.

THE SPORTSMAN'S CAMERA

(Continued from page 9)

The woods are full of cameras suitable to the needs of all types of sportsmen. In approaching the question of choice, the factors to consider are: principal use to which the outfit is to be put, size of picture preferred (either by contact or enlargement), and size and weight of load to be carried. Don't let the price question worry you. There is an outfit of the type you prefer at the price you want to pay. Price hardly enters into consideration, except that any sportsman (and all sportsmen are cranks) prefers to have the best quality of outfit he can buy. Sheer pride-of-possession dictates this.

With this I rest my case in the hope that the sportsman, having read all the evidence, will be able to render a verdict which will allow him to select a camera exactly suited to his particular needs. And if you don't pick the right camera the first time, don't forget that cameras are swapped as easily as guns.

After all, the sportsman really loves the environment of his sport even more than the results of the chase. And what more beautiful and lasting impression can recall the play of light and shadow beneath the trees, the ripple of waters on some lonesome lake, or the far-flung vista of distant mountains, than the picture caught by the shining lens and imprisoned in the little box we call a camera!

SPRING BEAR ON BALD MOUNTAIN

(Continued from page 27)

pleted the job of dressing-out. Bear meat, when properly prepared, is good eating, but two men alone cannot carry much of it when they have two rifles, a camping outfit, and a raw pelt to transport. So we rolled the big pelt into a tight ball, fastened it with rawhide thongs to the top of one of the packs, and started down the mountain, resting and changing the loads from time to time.

On the way out to the base camp we startled several deer, that got up far ahead of us and went away at high speed, the scent of bloody bear meat causing them much alarm. They were perfectly safe, for deer are protected during the months of spring and summer—but, of course, they did not know that.

If you are tough and can "take it," a spring bear hunt is one of the finest sports imaginable. There are no flies, the air is cold and bracing, deep snows make tracking a simple matter, and your bear, when you get him, will be in prime condition, his pelt unmarred by rubbed spots and thin places. There are no leaves on the trees to obstruct your vision, none under foot to warn of your approach. You can see the bear long before he either sees or scents you.

Bear have a tremendous amount of vitality, so remember to use your heaviest load, and take plenty of pains with your holding. You can't scare him to death—you've got to blast the life out of him with well-placed bullets having lots of punch and deep penetration.

Below is a partial list of "right" rifles

Bolt-Action	Winchester Models 54 and 70	30-06 or 7-mm.
	Remington Express (Model 30)	30-06
	Savage Model 1920	300 Savage
Lever-Action	Winchester Model 71	348 Winchester
	Savage Model 99	300 Savage
	Winchester Model 86	33 Winchester
	Winchester Box Magazine	30-06 and 30-40
Autoloading	Remington	35 Remington
	Winchester Model 10	401 Winchester

THE FREE PISTOL

(Continued from page 21)

drafted when the horseless carriage was as stream lined as a four poster bed, and not half as reliable. We must have two-pound trigger pulls and ten-inch sights just because somebody said so forty years ago—and somebody said it then because there was a far different reason involved than a desire to hit the target. When the rules were dealt out, a certain pistol was "King". It so happened that its action couldn't be adjusted to less than two pounds or else the hammer would plop on the safety notch. Since the gun company and the rule coiner were so close together that they wouldn't have let them in a high school dance, they took the easy way. Today we

for black bear and moose. They have all been thoroughly tested by the writer.

The self-loading Winchester .401 is a rifle of the so-called "blow-back" type using a heavy bullet at fairly good velocity. It has plenty of punch at medium ranges for the game mentioned, but should never be used for ranges much over 200 yards. The main points in its favor are its smooth receiver with no protruding knobs or bolts, its sure-functioning and fast-handling qualities, combined with nice balance for snapshooting purposes. Primarily a brush gun, its short barrel and rather high trajectory render it unsuited to really long-range shooting. It has killed plenty of heavy game, including the Kodiak Bear and Kenain Peninsula moose.

The .35 Remington is a better cartridge, and will do good work up to and including 300 yards, and more, in the hands of an experienced game shot. It, too, should be mainly used on game at moderate ranges.

For the lover of the lever-action, the .348 Winchester Model 71 leaves very little to be desired. Recently it has been brought out in a shorter, stubbier form with 20-inch barrel: perfect in all details for brush shooting. This .348 cartridge will perform satisfactorily on all Eastern game at the ranges at which such game is customarily shot, and can be had with both 150 and 200-grain bullets at satisfactory muzzle velocities.

As for the bolt-gun fan, enough has already been written concerning the merits of all the guns listed herewith.

So choose your own weapon, and here's hoping you get a chance to use it on a big, crafty black bear—outlined strongly against a background of white.

don't want rules so free that we'll need photo-electric sights, but we want rules that don't limit the target pistol to a foolish compromise between a real target arm for real scores and a "practical" pocket piece. Sensible rules will be an incentive to buying and trying better guns so that by 1940 we can do something besides sit around and watch geisha dances. Once in a while the Anti-Free thinkers uphold the present rules on the ground that a change would lead to the use of impractical guns. Just what is practical about our present pistols? They are practically useless abroad, they are practically impossible to stick in your pocket, and they are practically worthless against tigers. When objectors bear in mind that the pull on the "legal" .45 Colt auto is 4

pounds and that there are always a few accidental discharges each time there is a big .45 match? No rule will prevent carelessness, which is the only thing that makes any gun unsafe. For that matter, I have used my German Free Pistol for hunting. It is not very handy, granted, but it is as safe as any other gun with which a person is familiar because it can be carried uncocked with a loaded chamber. The trigger can be set at the last minute before firing, much as the hammer is cocked on an ordinary pistol.

Now that you have seen the Free Pistol, folks, I would like to show you the gun we used in 1936. It was made when your fathers were smoking corn silk and it's the tennis shoe all over again. The Europeans laughed at this gun. They did not laugh because the gun was no good. They laughed because they thought it was no good for the purpose. They said they knew because they had tried it.

America shoots in open fields where the wind may blow, but International matches are shot in sheds, to give each one an even break. Perhaps we could outshoot the rest of the world if they would do like we do and do it in an empty lot—but they won't. The Japanese are going to hold the next games, and they would probably like to play Jiu Jitsu and battle at Broad Swords with everyone, but they wrestle and fence instead, because they have to do things like the majority does if they want to play ball.

Do we want to play ball at the coming Olympic pistol meet? Sure we do. Then let's get going. Let's wash off those ten inch and two pound rules and give the boys a chance to experiment. If they need separate "Free Pistol" matches, "Geeveet to heem". Shooters are lethargic, so let the governors and rule makers encourage less restriction. We encourage the .38 shooters with special matches. None would attempt the .38 against a .22 "over the course". If there were no .38 matches, would our Emmet Jones's and Hemingways have developed? Let's develop some Free Pistol men. Maybe the .38 lads will stalk off with the stakes, but we won't know until we try. It is a sport that is a little more refined than our present game; a little further away from the barefoot era. It is target shooting based on the logical concept of getting the highest score rather than on our idea of, "Here is a certain kind of a gun. Go shoot it and see how good you can be with IT."

I know that one really progressive pistol factory in the country is just about all set to turn out a free pistol of radical and better design, if there is a call for one. It will make the foreigners gasp, too. However, the company isn't going to be a sucker and invest in a new gun to no avail. They don't want to take the word "Free" pistol too literally. They will back the

shooters up if the shooters get the urge, but the shooters won't hanker for these guns unless there are matches for them to shoot them in.

C'mon, let's take off the fetters and get the ball rolling. It will roll right over to Tokio and snow those guys under. Let them discover that we finally came out of our dream, took off our tennis shoes, and dug in to spike the medal.

THE FLINTLOCK RIFLE

(Continued from page 25)

has been fully adjusted, the tension of the mainspring should be increased. It may be possible to do this by heating the spring to a dull red, increasing the spread of the branches slightly, and then hardening and tempering to a pale blue. Try the tension carefully in the hand before replacing the spring in the action: if it seems abnormally stiff, anneal again or proceed with caution, as it may be easily snapped. Place it in the lock, cramping it just sufficiently to get it into place with the cock fully released. Now drawing to half bent will determine whether it is stiff, logy, or snappy. If all seems well, draw to full bent and try the lock a few times with flint in place. If the tension is still insufficient, bring the spring to a dull red and let it cool, then heat to cherry red as before, and quench. Temper to a purple bordering on dark blue. The proper temper will probably lie somewhere between a dark purple and a pale blue; the lighter the blue, the weaker the tension. You may strike it the first time or have to experiment three or four times, but be careful not to heat the spring to more than a cherry red at any time.

If you break the spring or cannot improve upon the temper, secure a piece of spring steel from a concern equipped to scientifically temper that particular kind of steel, or else forge a spring out of a piece of automobile spring leaf or a file. When working it up, be sure that the blade is wide enough to allow for the pivot, which should be forged integral with the spring (see Figure 8). Forge the spring roughly to shape, form the hook, and then bend the elbow. Be sure to have the blade thickest at the latter point, which should not be a sharp bend but

have a clearance of at least 1/32-inch between the branches (see Figure 3). Heat to a cherry red and make a right-angle bend; then reheat, insert a slip of thin steel in the elbow, and finish the bend. Work fast, and bend the metal only when it is red hot, or the fibres will be broken and the spring rendered useless. File the branches to shape, following the lines of the original as closely as possible and noting that the movable branch is tapered from elbow to hook. Chamfer the edges, fit the spring to the lock, remove the file marks, and polish. Before hardening, open the branches about 1/4-inch wider than they will be when the spring is in position in the lock. Harden and temper as described above; or better, if you secured the stock from a concern equipped for tempering, have them do the work, which will practically insure the success of your spring.

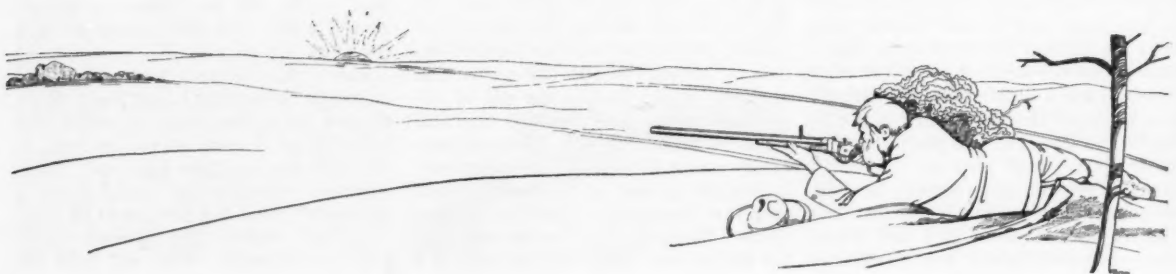
In order for the lock to be smooth and oily in action, and fast and reliable in performance, the friction surfaces should be reduced to a minimum, and the bearing surfaces honed and polished. The sear and hammer should work freely when their respective pivots are turned in as far as possible: try each limb to see that it is free, both before and after it is under tension of a spring. The fixed branches of the springs should fit close to the lock plate, and the movable branches should clear sufficiently to eliminate friction. To clean screw-holes filled with oil, filings, rust, etc., screw in a pin of soft pine or like wood. A thin paste of graphite and oil will prevent the screws from rusting in again, if a drop is put in the hole before inserting the screw. This mixture applied to the pivots and friction shoulders, and the hook, arbor, and pivot of the tumbler—as well as the anti-friction roller, will improve the smoothness of the action immeasurably.

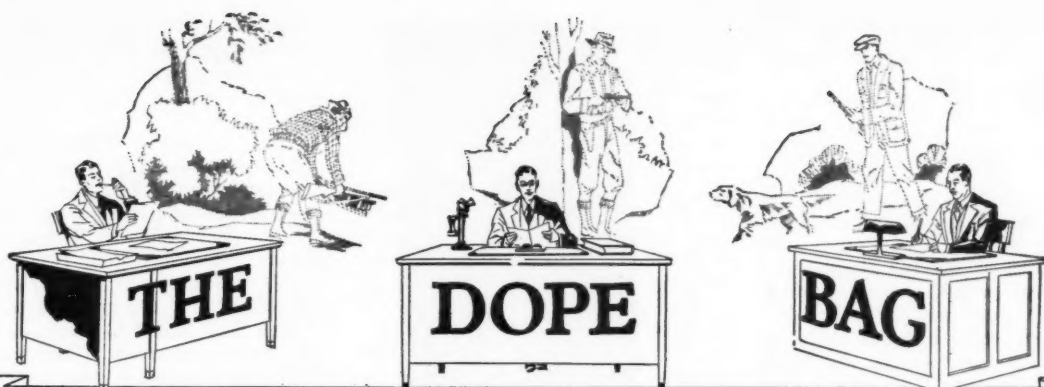
The limbs are assembled in the following order: Insert the arbor of the tumbler in the lock plate, put the cock on the tumbler square, and turn in the tumbler pin. Attach the bridle by means of the bridle pin, insert the sear and sear pivot, and attach sear spring. Turn the sear-spring pin in a few turns, press down on the elbow of the spring until the stud enters its mortise, and then turn the pin

in tight. Fully release the cock, and put the mainspring in place. The feather spring is attached first, and cramped sufficiently to allow the hammer pivot to be freely inserted.

The directions set forth for reconditioning and adjusting the internal mechanism of the flintlock may be applied to both the bar- and back-action percussion locks (see Figure 1-C and D), which are identical in principle at least. The hook action was superseded in the late flintlock period by the swivel action, with pivoted link (Figure 9-A) connecting hook of mainspring to hook of tumbler. This link is commonly found on bar-action percussion locks, and constitutes the only type of mechanism found on back-action percussion locks. The forks of the mainspring hook are occasionally found to be snapped off, which requires the forging of a new spring; and the pivots of the link are prone to break or bend, which necessitates filing a new link, and this should be hardened, and tempered blue. On back-action locks the office of sear spring is sometimes filled by the limb corresponding to the fixed branch of the mainspring on bar-action locks (see reference letter O Figure 1-D).

The tension of percussion-lock mainsprings should be considerable, not only to insure positive exploding of the percussion cap, but also to obviate the possibility of the striker reacting from the breech pressure exerted through the passage of the tube—which would allow bits of exploded cap to fly about, to the detriment of your person. In order to prevent bits of cap from flying about when the striker does not react, see that the nose of the latter is countersunk fully 1/4-inch. To lessen the duration of the lock time, the length of the fall of the striker may be shortened by altering the position of the full-bent notch, which may necessitate the stiffening of the mainspring in order to insure ignition—which in turn will also tend to increase the speed of the striker's descent. If a new tumbler is necessary to restore the lock of a percussion target rifle, the half-bent notch may be totally eliminated, as was done in many cases on original locks (see B—Figure 9), which insures the smooth and uninterrupted descent of the striker.





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Conducted by F. C. Ness

Improving the .22-Lovell

RESPONSES to "The Foolproof Lovell", which was published in the December Dope Bag, have indicated several things. Our readers are enthusiastically interested in this particular cartridge and in this general class of ammunition. Many of them endorsed everything we said about the .22 Lovell. In fact, we learned our claims were very conservative. We have since increased and improved our loads in the same case, and many gunsmiths have made new reamers for slightly altering the .22 Lovell case in order to give it greater powder capacity. The justification for altering an almost ideal cartridge lies not so much in ballistic improvement as in loading improvement.

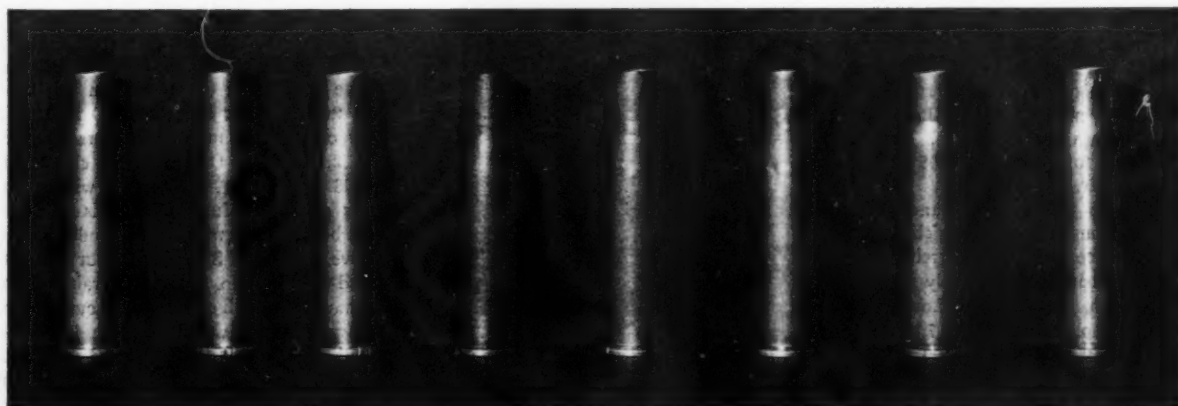
The normal .22 Lovell case must be packed with powder by comparatively

slow methods. Slow pouring and tapping or the funnel-and-plunger method of tamping must be resorted to if the more efficient loads of HiVel No. 3 and I.M.R. 4198 are to be loaded. These heavier loads are important in the .22 Lovell as they improve its ballistic performance not only as to power, but in accuracy as well. The time expended by the individual loader in charging his .22 Lovell with such loads is warranted by the improved results. Nevertheless we hope to avoid it by using a case of increased capacity. What we want is a grain-more capacity so our maximum charges may be quickly dumped into the case by machine methods. This is done by moving the shoulder of the case forward and using a shorter neck.

While there are a variety of .22 Lovell

cases in use, each gunsmith having his own version, our attempted standardization in an earlier Dope Bag was not entirely unsuccessful. At least, in common, all these different .22-Lovell cases are 17-grain cases. That is, they are all adapted for 16.5 to 17.5 grains of HiVel No. 3 or I.M.R. 4198 behind the Sisk 40-grain Express, 50-grain Lovell or 55-grain Niedner bullets. These three bullets and the two propellants mentioned, have proven to be the best in the .22 Lovell. Apparently, any necking of the .25-20 Single Shot Winchester case to .22-caliber makes an acceptable .22 Lovell. We are showing a cut of eight different cases in this size. All are fired and unsized Winchester cases chosen to compare chamber expansion.

1 2 3 4 5 6 7 8



Powder-Capacity Comparison

No. 1 is the first job by Hervey Lovell. It has a shorter neck and greater capacity than his subsequent jobs. Level full, this case holds 17.8 grains of 4198, 19.0 grains of 1204, 19.5 grains of HiVel No. 3, 20.3 grains of 2400 and 1.30 grams of water. This larger-size and short-neck shape of case appeared misshapen but worked well. Present type of cases fired in this old chamber for the reforming purpose shot to the same zero at 50 yards and into the same small group, which indicates the utter lack of sensitiveness of the .22 Lovell cartridge.

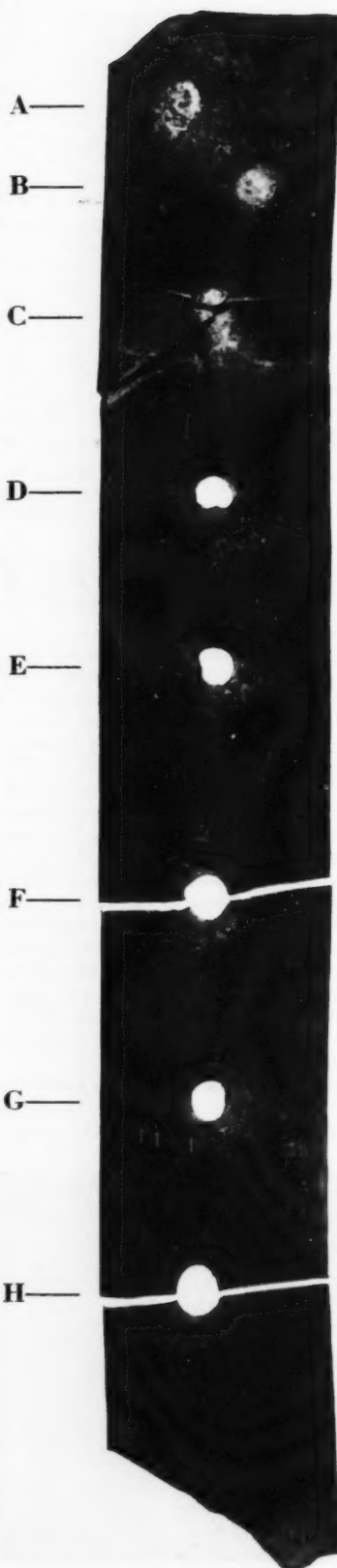
No. 2 is another type of chamber by Hervey Lovell. We understand that our test gun and one for R. B. Sisk were the only two rifles issued with this chamber. This one also has a fairly short neck, but the distinguishing characteristic is the very slight shoulder bevel, with a slope of only 3°. The capacity is very favorable, all our .22 Lovell tests having been made with this case. Level full, this case holds 17.7 grains of 4198, 18.7 grains of 1204, 18.8 grains of 4227, 18.8 grains of HiVel No. 3, 20.0 grains of 2400 and 1.28 grams of water. The shape of this case is shown more clearly in the line cut.

No. 3 is the shape of case adopted and furnished by Hervey Lovell as his standard. It is very similar to all others which are based on the dimensional sketch furnished by Mr. Lovell and published in the Dope Bag of June 1935. This case happens to be the only one in this group that has been sized, which, of course, would reduce its capacity below the unsized chamber-expanded status of all the others in this same comparison group. Even so, this case, level full, holds 17.5 grains of 4198, 18.3 grains of 1204 and 19.6 grains of 2400. This case is nearly the same as the three following.

No. 4 is the Niedner make of .22 Lovell. Level full, it holds 17.2 grains of 4198 and 19.6 grains of 2400 powder. The Sedgley-Lovell case appears the same but holds only 16.9 grains of 4198 or 19.1 grains of 2400.

No. 5 is the B. L. Smith, or Canadian modification of the (No. 3) standard .22 Lovell, as made for his Parker-rifled wood-chuck rifle. It holds, level full, 17.1 grains of 4198 and 19.5 grains of 2400 powder.

No. 6 is the standard and uniform Charles Johnson case for which he chambers the excellent Diller barrels and Diller-relined barrels consistently used in C. C. Johnson, Hornet and Lovell, rifles. This case holds, level full, 17.2 grains of 4198 and 19.3 grains of 2400, which indicates it has the same capacity as the Niedner and B. L. Smith cases mentioned



under No. 4 and No. 5, but less than the standard case by Hervey Lovell mentioned under No. 3 above. This No. 6 case and the No. 5 case have shoulder slopes of 4°-10'.

No. 7 is the first improvement on the (No. 6) Johnson .22-Lovell by Harvey Donaldson and M. S. Risley for the purpose of increasing its capacity. This case has its shoulder moved forward slightly, and it holds, level full, 17.6 grains of 4198, 18.6 grains of 1204, 18.7 grains of HiVel No. 3, 18.8 grains of 4227, 20.0 grains 2400 and 1.28 grams of water. By direct comparison, it has practically the same capacity as (No. 2) our own .22 Lovell as used in all our tests. After comparing results with us, Mr. Donaldson had M. S. Risley make a second reamer to further increase the capacity about one-half grain.

No. 8 is the second enlargement of the Johnson .22 Lovell by Risley, and Donaldson calls it the No. 2-R (Risley) case. It is the best of all attempted improvements we have seen, and we are having two rifles made, for it and a similar case of the same or slightly-greater capacity. This 2-R case has been tried by Donaldson, who had fine results with HiVel No. 3 powder and the Sisk 40-grain Express bullet. This 2-R case holds, level full, 18.3 grains of 4198 and 20.5 grains of 2400 powder. Its shoulder slope is rather abrupt, being 15°; that of the usual .22 Lovell is nearer 5°. A better idea of the shape may be had from the line cut.

All the powder-capacity test-weights mentioned above were uniformly obtained by packing-in all each case would hold. For a comparison, we dumped HiVel No. 3 powder, without packing, into several representative cases and got average weights for the loosely-filled capacity of each, level full, as follows: No. 2 (our test case) 17.3 grains, No. 3 (standard Lovell) 17.2 grains, No. 6 (Charles Johnson Lovell) 16.9 grains and No. 8 (2-R improved Lovell) 17.55 grains. For actual loading, to provide proper seating-space for bullets, these all would be reduced 0.2 grain.

To give this relationship more definitely, let us consider the No. 2 case which we have used in all our tests. In this case we use a seating depth of .109 inch and, for our rifle, a maximum overall length of 2.18 inch. Our heaviest charge of 4198 powder is 17.5 grains which fills this case level full. With this load we use both the 40-grain Express and 50-grain Lovell bullets of Sisk make. Our heaviest load of HiVel No. 3 was 18.5 grains which came to 1/8-inch of the case mouth. The 40-grain bullet was used with it. This load was cut to 18.3 grains and finally to 17.5 grains of HiVel No. 3, which was a better load for both bullets.



The heaviest Lovell loads grouped well at 200 yards. This 10-shot group measures 2.07 inches, even with its two fliers, which were called low-right when fired. The other 8-shots measure 1.58 inches with 4 in one hole. The special Kilbourn group-test target was used. The load was 17.5 grains of 4198 and the Sisk 40-grain Express bullet.

The .25-20 Repeater case is shorter than the .25-20 Single Shot case, but it has a slightly greater body diameter which equalizes the capacity of the two. We tried a .25-20 Repeater, necked to take .22 Hornet bullets, and compared its capacity by filling it with HiVel No. 3 powder. This Winchester case was fired in a special .22-caliber rifle and then tried for capacity without any sizing. Dumped level full it held 17.2 grains of HiVel No. 3, and packed full it held 18.2 grains of the same powder.

We also cut the .25 Remington rimless case off at the end of the body, or at the shoulder, and necked it down. This reformed case held 17 grains of HiVel No. 3, dumped in, up to the neck. Our interest in a rimless case is prompted by the rifle-manufacturing consideration. Our best currently-made rifles suitable for the .22 Lovell are bolt-actions, and the rimless case is greatly preferred for this type of action by the rifle makers. In pursuance of this idea, we asked an ordnance-expert friend for an ideal design of a .22-caliber rimless cartridge for the 17-grain load, and this is shown in the outline cut. Intended for .224-inch bullets, as it is, it will be noted that it is not to the same scale as the other two.

Referring once more to the Risley, No. 2-R, improved .22 Lovell, chambering and action-fitting is now available through M. S. Risley, Hubbardsville, New York. Mr. Risley also has an altering reamer with a pilot based on the Johnson .22 Lovell, so that any present owner of a Charles Johnson .22 Lovell can very simply and economically get the 2-R improved Lovell chamber, bullet seater and sizing die through Mr. Risley's services, by sending his rifle to Hubbardsville.

Penetration Test

Steel of suitable thickness offers a method of gauging the relative power of

loads, when similar bullets are used. We had a 14-inch plate of mild steel, 1/4-inch thick, which had stopped the .357 Magnum metal-piercer loads at 15 yards and our .22 Hornet ammunition at 50 yards. The first .22 bullet to pierce this plate was a 45-grain open-point Hornet bullet at 2625 f.-s. m.v.

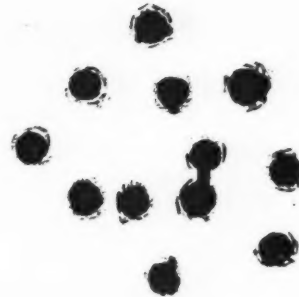
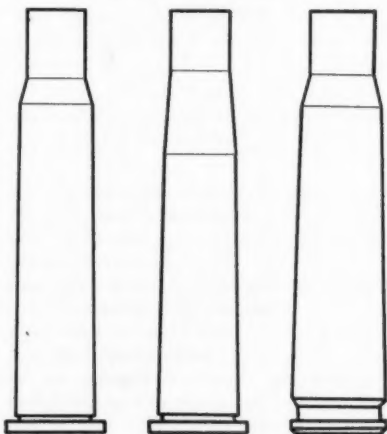
We moved back to 100 yards and this same 2625-f.-s. load was effectively stopped. We then tried the same bullet in a mild .22 Lovell load, velocity unknown. It went through with ease at 100 yards.

We moved back to 200 yards, and every .22 Lovell load or bullet penetrated the plate. The only exception to complete perforation was the heaviest load (18.5 grains) of HiVel No. 3 behind the Sisk 40-grain Express bullet, which penetrated deeply and bulged the back, although modified loads sent this same bullet through the plate with apparent ease at 200 yards. This exception at excessive speed we believe was accounted for by a deformation of the bullet, which may have caused it to lose velocity enroute or to encounter a greater than normal area of steel plate or to keyhole and smash up against the plate instead of drilling it.

This same load and bullet penetrated a 5/16-inch automobile spring of hard steel at 20 yards, which constituted a test infinitely more severe. This hard spring leaf was perforated, shattered and bent by the M-1 (.30-'06) Service load, indicating it was not only very hard, but tough as well. We shot through it progressively with our .22 Lovell loads, beginning with three loads of known velocity, which had previously been chronographed. These are all represented in the accompanying photo.

A. The surface was only slightly marked by the impact of the first bullet which was a 45-grain open-point Hornet at 2625 f.-s.

Left to Right: The second Risley-Lovell (No. 8); our test case (No. 2); the suggested rimless Lovell.



An unusual test target: A 12-shot group made with assorted loads in our Winchester Lovell at 100 yards. This assortment included the 54-grain W. & S., the Sisk 40, 50- and 55-grain bullets and various loads of HiVel No. 3, 4198 and 4227 powders. Even so, the center to center spread is only 1.52 inches!

B. The surface was slightly dented by the 50-grain Lovell bullet at over 3000 f.-s. The load in the .22 Lovell was 17.0 grains of HiVel No. 3.

C. The surface was dented and the spring was cracked by the 54-grain W. & S. bullet at 2850 f.-s. The load was the same as in B. Because of the failure of these powerful loads to perforate this hard spring leaf, we increased our loads to considerably higher, but unknown, velocities.

D. The first complete perforation was obtained with the 40-grain Express bullet and 18.5 grains HiVel No. 3. This is the identical load which gave the only incomplete perforation at 200 yards.

E. The same 40-grain bullet when driven by 17.5 grains of I.M.R. 4198 went through easily. This same load gave a 10-shot group of 2.07 inches at 200 yards and put most of its bullets in 1-1/2 inches at that range.

F. A complete penetration with the 50-grain Lovell bullet and 17.5 grains 4198. This was an accurate load also, putting all 10 shots in less than 3 inches at 200 yards. This load was evidently the heaviest we have ever loaded in the .22 Lovell. Also it showed more pressure signs on its primers than any other load. Until some one makes a pressure gun for it we will not know the relative figures for the .22 Lovell. This will be practical only after some loading company adopts it and makes it, and thus standardizes it. Until then it must remain a "wild cat".

G. The 40-grain Express and 17.0 grains 4227 had no difficulty in perforating the automobile spring. This load gave us several 10-shot groups under 2-1/2 inches at 200 yards in our Remington-Hepburn .22 Lovell rifle.

H. The 55-grain Sisk-Niedner bullet also went through when driven by 16.5 grains of 4198 powder. This load showed some

Sighting Equipment

THREE ZEISS SCOPES • T. K. LEE CENTER-DOT
NEW REDFIELD MOUNT • RAY BAN GOGGLES

Zeiss Sighting Telescopes. Perhaps the two most popular models, in this country, are the 2¼X Zielklein, a small, compact, low-power, game scope, and the 4X Zielvier, a big, medium-power scope of the all-purpose type. Recently we have examined a Feather-weight Zielvier equipped with integral base blocks and an internally-adjustable Zielklein model which provides horizontal control of the reticule for azimuth.

This Zielklein sample weighed just over 8 ounces and had the ideal length of 10 inches. It is small, neat and compact with a tube diameter of 22-mm. Even the (24-mm.) maximum diameter of the eyepiece is under an inch. Low, flat-top turrets, with sloping sides, project from the top and from the left side near the front of the instrument. These are directly connected with the reticule, and they permit moving it laterally and vertically for zero. This scope is thus made suitable for such non-adjustable mounts as the Albee, Turner, Peterson, Weaver and the solid-Noske mount as well as for the standard adjustable mounts of side-bracket or bridge type.

The adjustment controls had no clicks or graduations other than a single register mark for zero, and apparently no lock other than the brake of friction. Their limits of movement were found to be a quarter-turn counter-clockwise and a half-turn clockwise. In both planes (across the image) the total movement of the reticule was about a foot at 25 yards; equal to 48 inches at 100 yards. This was about 16 minutes of angle from the zero mark in one direction and 32 minutes in the opposite direction, both vertically and horizontally, which should be ample for sighting in.

Within its limited movement, the eyepiece of the Zielklein may be turned, in or out, for individual-vision focus. Our own best adjustment was the forward position and this left a little parallax. That is, there was a slight movement of the post across the image with the movement of the eye across the exit pupil. This scope

had the standard graticule No. 6, which is a flat-top post and a horizontal cross wire. In order to determine the error of aim under ideal conditions we used the standard Small-Bore target at 100 yards and aimed at 6 o'clock on its six-inch black from a fixed rest.

To obtain an average result, two shooters each made two triangles on this target. "B" had individual triangles of .49 and .21 inches, or an extreme spread of about ½ minute for a group of six trials at 100 yards. "N" had 3-dot groups of .18 and .15 inch, and a total 6-dot group of .26 inch, or a maximum spread, or aiming error, of about ¼ minute. The average error, then, for a dozen trials by both shooters was .38 inch or about ¾ inch at 100 yards. A duplicate test on a less-definite aiming point practically doubled the error. Even this maximum error, amounting to less than a minute of angle, would be of no practical consequence in game shooting, except in long-range work on small varmints, for which purpose a target-type scope is indicated.

By several check tests from 25 yards to 100 yards the flat top of the aiming post was found to subtend an angle of about 3 minutes. In other words, it covered from 3 to 3¼ inches at 100 yards in several different tests. For measuring the field of view at 100 yards we used a rope and got practically the full angular field by moving the eye along the horizontal wire from one edge to the other. This was nearly 34 feet, which is adequate for game shooting.

The image was clear to the outer edges and comparatively bright, the Zielklein being by direct comparison appreciably better than a competitive 3X scope of the same general type. On our adopted resolution chart, it failed to register at our standard distance of 25 yards, but it rated 1.8 at half that distance. In this same test three different Zeiss Zielvier scopes rated 1.8 at the full distance of 25 yards. Whether this actually proves twice the resolving power, as indicated, for the Zielvier over the Zielklein we can not say.

only erratic load was the excessive one (see D) and its average impact was .75 inch lower than the top load (F). The loads "B" and "H" came near this same impact, or only .05 inch lower. The load "G" was below all others being 3.30 inch lower than "D", or 4.05 inches lower than "F". The latter is a powerful load, but its angle of departure happens to be lower than that of the others which had been previously indicated in our testing.

The outstanding feature of the small Zielklein scope is the great latitude in eye relief which it offers. This is extremely important in practical game shooting because it permits quick sighting from awkward positions or undelayed sighting after a hasty and imperfect mounting of the rifle to the shoulder. The exit pupil is fully 8-mm. in diameter, and the normal eye distance is 3¾ inches. However, our check showed a clear view could be had by the eye at any point, over a width and height of one-third inch, beginning 2¼ inches behind the eye-piece and extending back to the end the eye-relief. On account of this desirable feature possessed by them, we have consistently recommended Zielklein scopes of both makes for practical game-shooting purposes.

The Featherweight Zielvier, just over 10½ inches long, is an interesting instrument, because of its astonishing lightness. Our sample, blocks and all, weighed less than 10 ounces, thanks to the modern light-weight metal used. The tube is 27.5-mm., or just over an inch, in diameter. The enlarged objective and ocular ends are, respectively, just under and just over 1½ inches in diameter. Integral with the tube, on the bottom, is a long male dovetail base, at the middle, with a much shorter but similar base under the objective end. These bases facilitate mounting, as they obviate the need of rings or clamps around the tube, and thus the scope need not be dismounted by the mount maker or gunsmith. Griffin & Howe have brought out a new mount designed to capitalize on this particular advantage of these integral, Zeiss, base blocks. See the cut, on page 43.

There is no adjustment for individual focus and no internal adjustment of the reticule other than for elevation. An elevation boss and its lock projects from the top of the tube. This scope, then, requires an adjustable mount, or one having lateral adjustment. For any of these big-size scopes, usually, we prefer the stronger bridge mounts, such as the Redfield or Tilden. However, this Featherweight model is so light it has very little inertia and we would not hesitate to use with it the new G.&H. side-bracket mount.

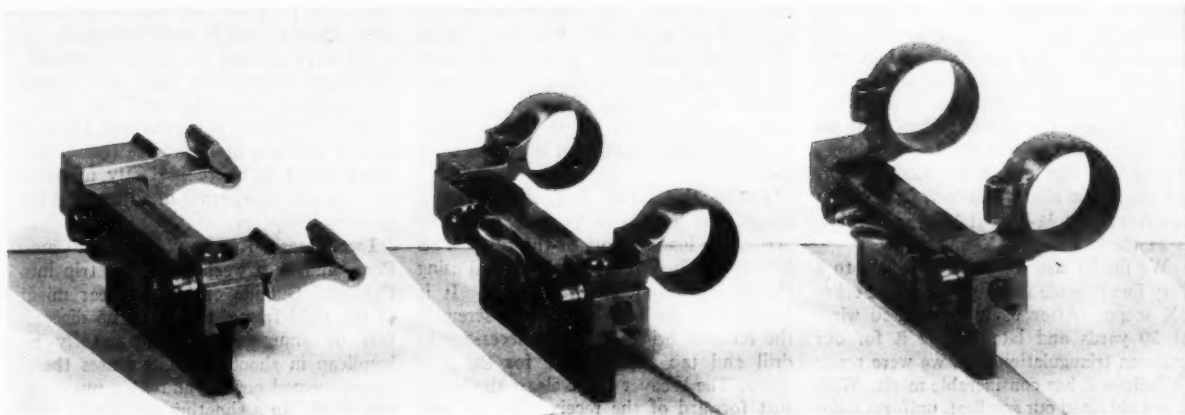
As already stated, the resolving power, or ability to define details and separate small adjacent objects in the field of view, is very good in the 4X Zeiss Zielvier and much superior to that of the 2¼X Zeiss Zielklein. The light-transmitting power, however, is about the same in the two instruments and so is the field of view. Our rope measurement at 100 yards gave for the Zielvier about 32½ feet maximum breadth of field.

The normal eye distance is the same as that of the Zielklein, but the exit pupil is not quite as great, though the latitude extends from a point 2¾ inches behind

(Continued from last page)

pressure signs but not to the extent of the 50-grain load mentioned under F.

These loads were not fired for trajectory but the difference in impact at 200 yards was noted. None of them were fired on paper at shorter distances. The highest strike was made by the heaviest load (see F) and we will use its impact as a zero for our measurements. The



Three G. & H. side mounts. Left to right: New lightweight ringless model for the Featherweight Zielvier; former conventional models

the eyepiece to about $4\frac{1}{2}$ inches behind it. In this respect it is superior to the compact Zielklein, which latter, however, has a greater lateral latitude on account of its wider exit pupil. Also the narrower bundle of exit rays from the Zielvier scope seemed to converge between the two critical distances while those of the Zielklein scope seemed to diverge and expand up to 10-mm. diameter between the $2\frac{1}{4}$ -inch distance and the 3-inch distance, measuring back from the eyepiece.

We have now examined several Zeiss Zielvier scopes variously equipped with: Special cross-hair reticule, No. 7 post graticule and No. 4 combination post and cross-hair graticule. In all of these there was some parallax, with the eye, at 25 yards, amounting, respectively, to 2, 3 and 1.6 minutes of angle. The cross wires covered, in thickness, the equivalent of $\frac{1}{2}$ or $\frac{3}{4}$ minutes of angle. The latest Featherweight sample had the cross-hair reticule, and the wire covered $\frac{1}{4}$ to $\frac{1}{2}$ minute of angle at 25 yards and about $\frac{1}{2}$ inch or slightly more at 100 yards. The apparent parallax was $\frac{1}{2}$ inch movement, with the eye, or about 2 minutes of angle, at 25 yards.

For the lower magnifications and the coarser cross-hairs we have found the "V-H", True-Vision targets to be most accurate in our triangulation tests conducted for determining the error of aim at 100 yards. We tried the Featherweight Zielvier on this target from a fixed rest. The average results of two shooters were obtained, as in the test of the Zielklein scope. "B" had 3-dot groups of .38 and .16 inch, and a 6-dot spread of .39 inch at 100 yards. "N" had 3-dot groups of .26 and .14 inch, and a total 6-dot spread of .38 inch. The average for the twelve trials by both shooters at 100 yards was an error of aim of only .385 inch, or about $\frac{3}{4}$ minutes of angle. This would indicate the parallax present in this instrument



How Stith mounts the big Zeiss Zielvier

actually would be of little practical consequence in game shooting.

The $1\frac{1}{2}X$ Zielmar is an interesting instrument, because it approaches the Zielklein in shape, length, size and weight and yet has 60 feet of angular field at 100 yards. By our own measurement at 100 yards along the cross wire, we got 58 feet breadth of view with this scope. It weighs an ounce more than the Zielklein and its tube is 5-mm. longer. The tube is the same diameter, but the eyepiece is 3-mm. thicker in the Zielmar. The eyepiece may be turned for individual focus, like that of the Zielklein.

We could get it into fair focus and had very little parallax movement of the flat top of the Zielmar aiming post. This covered 10 inches at 100 yards, and was not suitable for fine aim on small objects. On the 6-inch black our average error of aim was more than $\frac{1}{4}$ minutes of angle. The individual 3-dot triangles for two shooters, ran .76, .36, .46 and .21 inches. The 6-dot groups were very uniform, with .77 inches for "B" and .78 inches for "N".

At its lower magnification the resolving power of the $1\frac{1}{2}X$ Zielmar was appreciably inferior to that of the $2\frac{1}{4}X$ Zielklein scope. In bright sunlight outdoors it fell short of duplicating the definition obtained with the Zielklein under much less-favorable, artificial light indoors. The Zielmar is therefore intended for quicker but less exact aim. It would probably be

the best Zeiss scope for use on a shotgun or on a carbine intended to be used for snap shots in the brush. When properly mounted on the rifle to suit the individual eye-position of the shooter, this scope not only presents a wide field of view, but one with very little margin, or rim obstruction, between it and the outside field. This makes it possible to keep the eye on a moving target at all times inside or outside of the scope's field.

The latitude in eye-relief of the Zielmar scope does not improve on that of the Zielklein scope. In the Zielmar the exit pupil is 1.3-mm. larger, but it narrows down to 8-mm. ($3\frac{1}{2}$ inches from the eyepiece) at the midway point where that of the Zielklein widens to 10-mm. diameter. In our relief check the (12-mm.) light ring became bright and clear about $2\frac{1}{4}$ inches from the eyepiece. It was bright and sharp up to about $4\frac{1}{4}$ inches where the circle of light measured 10-mm. However, between these two distances it converged to 8-mm. and became blurred. The normal eye distance for the Zielmar is given as $3\frac{3}{8}$ inches, but we found it usable up to 5 inches with very little loss of field.

This scope has an elevation boss, near the front end of its straight 22-mm. tube, being like the Zielklein in this respect. It had a flat-top post with cross-wire, perhaps the best for this type of instrument. This reticule was controllable in the vertical plane only, for corrections in elevation.

A Dotted Cross-Hair Reticule, for target scopes relieves eye strain and helps to keep the center of the cross-hairs in the X-ring. This is the belief of T. K. Lee, Manager of the First National Bank Bldg., Birmingham, Alabama, and T. K. should know because he is a hard-holder and has done some fine long-string shooting.

Although a bit skeptical, we were willing to accept his offer to add a small center dot to the cross-wires of one of our scopes.

We never recommend the usual center dot because we have tried, and never found any advantage in a dotted cross-hair reticule in any low-power scope sight. We learned from Mr. Lee, after sending one of our Lyman 438 scopes to him, that his dot is practical only in 8X to 16X scopes having very fine cross-hair reticules. The dot should be about .001-inch in diameter to cover about 3/4-inch at 100 yards which, is 3/4 the size of the X-ring.

We finally had a small dot added to a very fine reticule for our 1-1/8-inch Fecker 8X scope. After using the dotted wires at 50 yards and later trying it for our uniform triangulation test, we were ready to believe it has considerable merit. With it, we obtained our smallest, uniform 6-dot groups using the standard 100-yard target. Two shooters tried it in the triangulation test, with and without shooting glasses, with an average error of aim of only .14 inch for four 6-dot groups. Six 6-dot groups, using the V-H "True-Vision" target and the 100-yard standard target, gave an average of .15 inch. The eight individual 3-dot triangles averaged only 1/10-inch error of aim for the standard 100-yard target. This indicates for us at least, a minimum error of aim for the Lee center-dot properly used. A relief from eye strain as well as an excellent aid to exact aim may be had by using this fine center dot.

A Practical New Redfield Mount for mounting the small, light Weaver scopes is now available from the Redfield Gun Sight Corporation, 3315 Gilpin St., Denver, Colorado. It is also made for the small Zeiss Zielklein scope. Either the model with both internal adjustments or the model with vertical adjustment only can be used in the new mount.

Although the mount sent in was made for the M-70 Winchester rifle, we found the long eye-relief of the new 330 Weaver permitted our mounting it in low position on our M-54 Winchester in .250 caliber. This was accomplished by placing the rear scope-ring of the bridge-type mount in back of the internal adjustment housing of this scope. This method placed the eye-piece of the scope forward of the unaltered M-54 bolt lever. Although the sample mount was not intended for this rifle it worked out perfectly in our tests.

Like the larger Redfield, the smaller mount is furnished with windage adjustments. These proved reliable in our tests. The mount was removed and replaced at least six times while firing one 10-shot group with no appreciable change in zero. In fact, the point of impact changed only slightly more than 1/2 minute. The group was only .34-inch larger than one fired previously without removing the mount. Using 35.5 grains I.M.R. 4064 behind the 100-grain U.S.C.Co., .25-35 S.P. bullet, the 100-yard, 10-shot groups were 1.38

and 1.72 inches. The scope-removal test enlarged the group only because a "sense of feel" must be relied upon for returning the windage screw to exactly its former adjustment. On this slight but unavoidable inexactness we blame the increased horizontal spread obtained in the removal test.

Unlike the larger Redfield, the new mount has a (5 3/8-inch) base extending across the loading port of the rifle. This base is attached to the receiver hood using the factory-provided screw holes. It is fastened at the rear by a single screw in the receiver bridge. It was necessary to drill and tap the receiver for the rear screw. The Weaver scope clears the barrel just forward of the receiver by 3/16 inch and its slightly-enlarged eye-piece clears the receiver by about the same amount. This places the scope line-of-sight only 1 1/16 inch above the bore.

A somewhat similar method is employed for attaching both Redfield mounts. They are both easily removed or replaced on the rifle, although they are not the quick-detachable type. One windage screw is removed and the scope is swung to the right or left one quarter-turn to free the pivoted, male dove-tail lug of the front-mount ring from the permanent base.

For a practical, medium-priced hunting scope and mount the Weaver-Redfield combination is an excellent one to consider. It makes a light, neat outfit and is listed at only \$35.00 complete. For only \$11.00 more, or a total of \$46.00 the excellent Zeiss Zielklein scope and new Redfield mount are available.

The 330-C Weaver has proven quite reliable in several hunting mounts. It was first tried in the Peterson hunting mount on a standard Model-70 Winchester in .30-'06 caliber. With F.A. 1931 ammunition this combination made 100-yard, 10-shot groups of 1.50 to 1.89 inches. The 50-shot, bench rest average was 1.68 inches. In the .250 caliber the Redfield Weaver combination gave 10-shot groups of 1.23 inches to 1.72 inches with a number of our best handloads. The 50-shot average was 1.49 inches. The smallest group was made with 34.5 grains I.M.R. 4064 behind the W.T.&C.W. 100-grain bullet.

"Ray Ban" Goggles were on display in the Bausch & Lomb booth at Camp Perry last fall. Roy Walker told us a great sum had been expended in the development and perfection of the tinted glass used in this aviation goggle. For "Ray Ban" he claimed minimum light-absorption, maximum eye-comfort and visibility as compared with tinted glass in general. A pair was obtained for trial.

One thing I liked was the bluish cast of the tint used in the "Ray Ban" lenses, because I had found blue, as a tint, was very soothing and restful to my eyes.

One thing I did not like was the synthetic shell frames, which were designed for street wear and not for sport. However, the lenses were amply large and curved for adequate protection and for a wide range of visibility. None-the-less, I should greatly prefer a more flexible frame; one which could be more perfectly fitted to the face and thus permit of adjustment for shooting purposes.

I wore these "Ray Ban" goggles at Camp Perry and on a week's shooting trip into Canada. Outside of nose-and-ear misfit of the rigid frame, they gave no discomfort or annoyance, and apparently no handicap in shooting. The lenses themselves seemed perfect and were much appreciated. In a shooting test with a very fine outfit for determining, critically, the smallest error of aim, we were unable to determine any which could be charged to "Ray Ban".

For "B" the 6-dot group at 100 yards was only .02-inch larger when he wore these goggles, and the average dispersion of his 3-dot triangles was exactly .02-inch smaller, which equalized the results. For "N" the 6-dot group was .02-inch smaller with "Ray Ban", and his 3-dot triangles averaged .025-inch smaller with these glasses. Remember, these were not shooting glasses, and also note that a very accurate and critical test was being made. In fact, the biggest triangle, or 3-dot group, made by "N" when wearing "Ray Ban" had an extreme spread of a mere 0.09-inch at 100 yards.

BULLET METAL EQUIPMENT

HEAVY-DUTY FURNACE

BULLET-METAL TESTER

ELECTRIC THERMOMETER

A Large Potter Electric Furnace with double heating unit is now being made for use with Multi-cavity bullet molds. A double plug and wiring system connected to an "off and on" switch makes it possible to use one or both of the heating units at a time. This makes it possible to use only one unit for casting with single-cavity and double-cavity molds, as the double-unit overheats the alloy, except when using a four, five or six-cavity mold. This makes it an all-purpose melting furnace for bullet casting. It sells for \$15.00.

Except for the greater capacity and the double heating unit of the new furnace it is, in design, similar to the smaller electric furnace sold by the same company. The space between the cast base and the outlet nozzle, in the bottom of the furnace, has been increased to accept the larger Multi-cavity molds.

Because a bigger mold was not available, we tried the sample furnace only with a two-cavity mold. We have, how-

ever, reports from at least one source that the big Potter gives plenty of heat to keep a six-cavity mold going at top speed. Although we have not tried it, we believe the report quite authentic because the sample furnace was given a more severe test.

As anyone who has worked with bullet alloys knows, antimony is the hardest of all of them to melt. This has always been quite a problem for us when making up our 2-2-96 alloy, which has always given good results. The problem was solved when we tried the double-heating-unit furnace which proved the most satisfactory method of melting antimony. We have tried gas stoves, gasoline stoves and several electric furnaces, but we have not used a blast furnace which should give sufficient heat for this purpose. We know, from our recent experience, the Potter furnace will heat an alloy well over 1160° Fahrenheit, which is the melting point of antimony. One heating unit will keep the alloy between 800 and 900° Fahrenheit when using a small mold. We found this to be about the right temperature to cast perfect bullets using a double-cavity mold. The temperature was determined with a Whitlock Electric Thermometer, which registers temperatures up to 1000° Fahrenheit.

The Potter Company also makes another piece of equipment which may be of interest to the more serious-minded handloader. It is a device for comparison, only, of bullet-metal hardness. It does not determine the percentage of tin or antimony in lead, but it is useful for comparing the temper of one mixture or alloy with that of another, or for duplicating the temper of an alloy, previously found good.

The Bullet Metal Tester has not been perfected to the complete satisfaction of the Potter Company, because a number of things must be considered for this sort of testing device. Uniformity of results depend too much on the technique and uniformity of operation. Also, it is known that an alloy will become harder on the surface than nearer the center, especially when it cools very rapidly. Even the top and bottom of a piece of alloy will show a different reading on the tester. One ingot we tested in October gave a reading of 12.2, while the same ingot gave a reading of 10.2 nearly three months later. This, however, is not a fault of the tester, it being merely a surface change. These are some of the reasons why the tester must be used properly to get worth while results.

From our experience with one of these, which we have had for a long time, as well as with a new improved one, we believe a fairly uniform comparison of alloy tempers can be made. The best method, we found, is to test the alloy immediately

after it becomes cool and to make at least two or three tests on both the top and bottom of the ingot. Then only the average reading of all tests should be considered for the alloy comparison.

The Whitlock Electric Thermometer should prove very useful to the exacting handloader who casts his own bullets. The thermometer provides a means of determining the temperature of bullet alloys, which is important for casting good bullets. The basic principle of the Whitlock Thermometer is that two dissimilar metals, when joined together and subjected to heat, will generate electricity. The small magnitude of voltage is registered on a milliammeter which is graduated in tenths of a milliampere. The temperature reading is taken by multiplying the one-tenth-milliamperes by 1000. Therefore, a .625 reading indicates a temperature of 625° Fahrenheit, which is the melting point of lead. The range of the thermometer is to 1000° Fahrenheit.

After using the thermometer several times we were able to determine the approximate melting point of our bullet alloys. We found this to be just above 500° for a mixture of 2% tin, 2% antimony and 96% lead. This method of determining the melting point is, we believe, approximate, because there were several readings, any of which may have been taken for the melting point. One reading for our alloy was 560° while complete solidification took place at 500°. Therefore, the melting point lies somewhere between the two temperatures. A check test was made with 50-50 solder. This also gave two readings. Complete solidification took place at 300° while another reading of 390° was registered on the milliammeter. Also the solder was completely melted at 390° in another test.

For comparison of the melting point of different alloys or for duplicating a certain bullet metal we believe the thermometer has a definite usefulness to the bullet caster. It is particularly useful for determining the right temperature for turning out good bullets. The self-contained electric device is made by Mr. F. A. Whitlock, 709 W. Elk St., Freeport, Illinois. It retails at \$10.00.

MISCELLANEOUS

Looking back, 1937 was a fruitful year for shooters and some definite progress was made in refining old and in developing new shooting equipment. Our own most appreciated acquisitions were a portable bench rest and the Hubalek machine rest. The power and prestige and popularity of the .22-3000 Lovell was advanced, but the outstanding cartridge of the year was the new .270-Winchester;

3500-3600 f.-s. with pointed 100-grain bullet. The .220 Swift established itself in the big-game fields, though primarily it is a varmint cartridge. Remington brought out a short but normal-power, 2-inch 12-gauge cartridge for the very-light British "20th Century" gun. The .300 Magnum and .375 Magnum, on account of Winchester adoption, became more popular.

For small-bore shooters, excellent full-fledged, match rifles, represented by the M-37 Remington and the improved 52 Winchester "Marksman", were outstanding. We particularly appreciated these and our .22-caliber special-barrels by Arthur Hubalek and Eric Johnson. The outstanding moderate-price rifle was the M-416 Stevens, a lever-angle improvement on the Sears Ranger .22. The left-hand bolt-action .22 rifles by Mossberg deserve mention. Smokeless rim-fire loads came to the fore.

The scope sights of the year for us were the 15X Super-Targetspot with new 3-point mounts by Lyman, the 1¼-inch 10X Unertl and the fine Fecker cross-hair with fine center-dot by T. K. Lee in our old 1½-inch Fecker 8X. These three have given less error of aim than any sight tried over the 12-month period. The finest cheap scope sight we tried was the new No. 2 Marlin outfit with Marlin steel mounts. The new items in hunting scopes were the adjustable Unertl game scope, the Featherweight Zeiss Zielvier, the improved 330 Weaver and the special all-purpose hunting reticule (post-aperture and cross-hair combination) in the Czechoslovakian Lovec 4X scope developed by Srb a Stys. The most attractive new mount for small scopes is the low-price Redfield for the M-70 Winchester, which requires the drilling of only one screw-hole. The new Peterson mount had the neatest design. The most interesting spectacles were the Belz Polaroid. In goggles, the best high-grade, ground, tinted and toric lenses looked through by us were the new Bausch & Lomb "Ray Ban". The best shooting glasses tried were the new Belz with sweat-bar bow-frame. The best low-price spotting-scope outfit tried was the Mossberg. The finest spotting outfit tried was the B&L prismatic scope in the new Freeland scope stand made to match in color and finish.

The outstanding reloading tool for rimless rifle cases which we tried was the Jordan. The best low-price tool of the year for convenient home-reloading was the Potter GEM. The best aids to quantity production of handloads were the Cramer 8-cavity and 10-cavity gang molds and the Star loading machine. The Potter Electric Furnace, which went way over 1000 degrees in fifteen minutes, was the biggest aid in preparing (Potter-mold ingots) bullet metal and in melting that "cantankerous", bullet-alloy, antimony.

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The Wilson, inside-neck-reamer and the Wesnitzer, stainless-steel, primer-pocket cleaners were much appreciated. Earl Naramore's concise, "Handloading Manual" was a find, but to those who like lists of lots of loads, Phil Sharpe's, "Complete Guide To Handloading" was a bigger advent of 1937.

The best adjustable revolver sight tried was King's Super-target rib sight. Outstanding revolver rods were the Bair wooden rods made to fit the barrel-length exactly and the Tri-Pak jointed rods. The Tri-Pak shotgun rods led the trial-field in 1937. The best chemical find was Dr. Arneson's Pipe Cleaner, the only effective lead remover discovered. Of all cleaning rods tried, for rifles, we liked the Vickery steel rods. Dex-Kleen Wipers (sheep-skin pads filled with Rig) were much appreciated and used daily. The outstanding handgun of 1937 was the High Standard Model-C, a ten-shot autoloader for .22 Shorts, very accurate and reliable in our own sample. H&R. Single-Action Sportsman revolvers were greatly improved in trigger-pull, ignition and in smoothness of functioning for rapid-fire work. The best holster tried was the Berns "Lightnin'," an upside-down, shoulder holster, for 2-inch and 4-inch revolvers.

In components, the W.T.&C.W. .25-caliber H.P. bullets, in 100-grain and 110-grain weight, deserve mention, as do the

Sisk 40-grain Express, 50-grain Lovell and 55-grain Express in .22 caliber. Peters belted bullets and the two makes of rifled shotgun slugs were outstanding in the mob.

The M-37 Ithaca pump gun and the low-cost Marlin Over-Under linger in our memory as the most interesting of all shotguns tried last year. The "20th Century" gun was the most unusual.

Zipper comments continue to be as confusing as Zipper results. We settled back with a sigh of relief when our very best Zipper out of nine rifles tried, a Lovell-Mausier, responded repeatedly with fine groups over several tests. However, only one load continued to perform in our final check, by putting all ten shots in 2½ inches at 200 yards. Some of the other, previously-satisfactory loads went as wild as 4½ inches. We then bought some Winchester factory ammunition for a farewell salvo at 200. The 46-grain cartridge gave 10-shot groups of 3.98 and 3.78 inches. The 56-grain load followed with 10-shot groups of 4.00 and 3.10 inches at 200 yards. Every group had a flier, but one, and that had two. These 9-shot groups ranged from 2.08 to 2.54 inches, which is good for 200 yards, and this served to take some of the sting out of our disappointment. This caliber has left us a bit discouraged.

The 1938 Sporting Section Catalog of Parker Hale Bisley Works, Birmingham, England, is dated November 1937. Its 350 odd pages are well illustrated, not only profusely but exceptionally well. Many interesting things can be learned about accessories and new ideas about shooting can be had merely by viewing these pictures. The catalog is even more interesting than former editions and I think it is as desirable as any handbook.

There is a sporting-rifle-section, which shows such unusual things (not common to American catalogs) as silencers, optical sights, sportsmen's seats, search lights for guns, Parkerizing, British and German light rifles and Vickers and B.S.A. high-power rifles.

The shotgun section displays silenced pest guns, walking stick guns, harpoon guns, handguns, adapters, special slugs,

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sights, stock elevators and hand protectors, besides cleaners, standard guns (including the B.S.A. and Webley) and other equipment.

There are still other items of general interest in the air gun section and in the gunsmithing section. For example, the Ross 13/4-4X Sporting Scope Sight is shown and the Ajack Klein 2.4X. There are smooth-bore rifles for shot cartridges, rifle vises, cleaning and sighting gadgets, Kynoch ammunition, special targets and traps. In short it is so replete with the unusual as to interest everyone.

Gun-X, a Cleaner and Rust Inhibitor, is one of the latest, worth-while preservatives that we have used. It is a semi-solid grease that does a good job of cleaning, even for removing corrosive primer-residue. Gun-X is applied like any other cleaner and the last application is left in the bore. This method gave complete protection for more than a week at a time. It was also subjected to our uniform, comparative salt-brine test, and for nearly one and one-half months it has protected a polished razor blade against rust. This test will be continued to determine its effectiveness over longer periods of time.

A claim that is made for Gun-X is that it leaves a durable microscopic film which can be removed only with a solvent. One of the basic lubricants of Gun-X can be subjected to high temperatures without losing its lubricating qualities, according to the makers. This heat-resisting film should prove an effective lubricant in gun bores. Mr. Phillips of Sportsman's Products, 115 S. 20th St., La Crosse, Wisconsin, who sent in the samples, states he has used his collection of guns as a proving ground for testing out Gun-X. It is put up in handy, generous-sized tubes.

NEW ITEMS

THE Lyman 2 1/2X Alaskan field scope. Tube of aluminum alloy, hardened for tensile strength and steel-like resistance, it is claimed. Weight 8 ounces with 22-mm. tube and enlarged eye-end. Internal click adjustments in both planes with graduations and a screw lock. The mechanical work on these "is held to .0001 inch." Apparently adaptable to any gun or mount.

The objective aperture, 18-mm. and the ocular, 22-mm, with a 9-mm. exit pupil and a 5-inch eye-relief. The field is about 40 feet at 100 yards. The Bausch & Lomb optics are very good, and the two samples appear very uniform in every respect. One has a blunted picket, the other a fine flattop post, both with horizontal cross-wire. The eye

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relief permits clearing the bolt handle on the old 54 Winchester.

A new Griffin & Howe light-weight mount, of the same type of alloy is being made for the Alaskan.

An anemometer for about \$15.00 is available through M. C. Stewart, 432 Massachusetts Avenue, Arlington, Mass. Made durable for outdoor use, it requires low-voltage current or dry cell connection and some form of indicator for completion. The wind-velocity may be registered by a flash system or by a dial indicator. The external wind-turning part we received is made convenient for hook up with standard piping. It will be tried on the N. R. A. range.

Al Freeland has a line of new Champion Stocks, made for any target rifle, either scope or metal sights, and individual butt-lengths. All are equipped with a new adjustable Fore-end Stop and non-slip rubber buttplate. Only best woods are used, he claims.

L. E. Wilson has a crimp remover for trimming primer-pockets in connection with the base and shell-holder of his shell-trimmer and inside-neck reamer. It accurately removes the crimp left by clinched-in primers without distorting the pocket.

A. E. Berdon has some new metal grips for the Cold Woodsman and a built-in slide stop for these or standard stocks.

The High Standard Model-A pistol has a new, longer and much better stock of walnut, and also a slide-retention feature. This model, with standard and heavy barrel, will soon be available.

H. & R. have a new Ultra Sportsman revolver with a short cylinder, short hammer fall, light fine trigger, and a better hammer for rapid-fire thumb-cocking. It looks like an H. & R. S.-S. target pistol with a cylinder.

Kearsarge has some new anti-recoil stocks for the .357 Magnum which are fine for feed and hold and fine to look at in his carved

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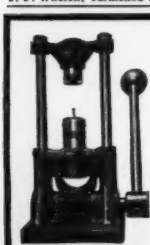
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.38 is already out West for this. He also can supply slide stops for the Woodsman and 5-shot magazines for 3-stage shooters.

George J. Hyde, Arthur Hubalek, Jerry Gebby, advise they are prepared to chamber .22 barrels for the improved Lovell to take the 2-R Risley-Donaldson case. They fit them to any suitable S. S. actions such as the heavy high-wall Winchester, Sharps-Borchardt, 44 1/2 Stevens, Remington-Hepburn and Farquarson. Others are: Krag, Springfield, M-1917, M-54 Winchester, M-40 or M-20 Savage, Mannlicher, Mauser and Spanish-Mauser bolt-actions.

Detroit Loading Tools, 7332 St. Paul, Detroit, Michigan, has a new low-price powder loader and a thin-grease gun-cleaner-and-preservative.

Murphy 3-stage targets, suitable for 50 yards and 25 yards, thanks to its dual-purpose standard back, are available through Wilson H. Lee Co., New Haven, Conn. So far, we have not lost any points from our average when using this two-size target.

CORRECTING BULLET-DROP DOPE

BY our replies to two letters published in the Dope Bag (Oct. and Jan.) we have left the matter of computing bullet drop in somewhat of a muddle. This we hope to definitely clear up here by completely working out the same examples step by step, from start to finish.

The initial problem, as stated by "W.F.S." in his query, was: "If a gun is sighted in at 200 yards, how can I tell from the ballistic tables how high to aim for game located at 300 yards?" Instead of the hypothetical figures given by W.F.S. we will use the actual figures of the ballistic tables for the load he mentioned, which was the 110-grain, .30-'06, Hi-Speed, m.v. 3500 f.-s.

The Remington figures for midrange height of trajectory for 200 and 300 yards, respectively, are 1.8 inches and 4.5 inches. The rough rule, "4 times the trajectory equals the drop", was used. Four times the 200-yard trajectory is 7.2 inches. In minutes of angle, each worth 2.09 inches at 200 yards, this is 3.4 minutes. That is, we can assume there is an elevation of 3.4 minutes on the sight if, as the problem states, the rifle is zeroed at 200 yards.

Again, 4 times 4.5 inches makes the 300-yard drop 18 inches. Divide this by 3.14 inches (the minute-of-angle value at 300 yards) to find how much elevation is required to compensate for that 18-inch drop, and we have 5.7 minutes. Since we already have 3.4 minutes on the sight we will have to add 2.3 minutes elevation or hold 7.2 inches (2.3 times 3.14) high at 300 yards. This is only approximate but sufficiently accurate. It is, in fact, closer than one can hold off, or estimate distance, or group his shots, at either range.

According to an old table, which we published in the Dope Bag back in May 1933, this load requires an angle of elevation of 3.2 minutes at 200 yards and of 5.1 minutes at 300 yards. That means 6.7 inches drop over 200 yards and 16 inches over 300 yards. In view of the normal error of rifle and load plus the error of aim and the shooting error, at the given range of 200 yards, I do not think we should quibble over a difference of

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1/2 inch in drop; to say nothing of the insignificant discrepancy of only 2 inches of bullet drop over the estimated, and therefore indefinite, distance of 300 yards.

Using these same drop figures obtained from the elevation table and working our rule backwards, we can make a check on the midrange trajectory height over the two ranges. Now dividing by 4, we get 1.7 inches for 200 yards, which is only 0.1 inch off, and 4 inches for 300 yards, or only 1/2 inch off for the longer range.

The same elevation table quotes, for this 110-grain bullet, 1.5 minutes of angle for 100 yards, which results in a drop-figure of 1.57 (or 1.6) inches when it is multiplied by the minute value of 1.047 inches. This permits still another check, because we happen to know the remaining velocity of the 110-grain bullet is 3050 f.-s. at 100 yards, and from it we can obtain the time of flight for application of the drop formula (1/2 gt²) which resolves itself into 16 times the square of the time of flight.

In order to get the time of flight we use the average velocity over 100 yards, which is 1/2 the sum of the m.v. and the r.v. (3500 f.-s. added to 3050 f.-s. and divided by 2) or 3275 f.-s. Divide this into the range (300 feet) and we get .0916 seconds. Square this figure (multiply it by itself) and then by 16, as per our drop formula, and we get a drop of .134 feet over 100 yards. Multiply by 12 for inches and we have 1.61 inches, which checks almost perfectly with the table.

The rule for trajectory is 4 times the square of the time of flight, which, in this case, is 4 times .0916 times .0916, or .0335 feet. Twelve times .0335 makes it .403 inches for the midrange trajectory over 100 yards. Applying our first rule, "4 times trajectory", we have 1.61 inches drop, which, of course, checks.

In the other problem presented by J.R.M. the 225-grain Peters Belted Bullet was used. The drop figures given in our reply (Jan. Dope Bag, page 50) were substantially correct, or close enough. However, the deductions from those drop figures were obviously wrong, although for holding-off over guessed ranges with a guessed amount of sight allowance, as in that problem, they may have been close enough. For accurate adjustment of fine target sights, however, the dope was misleading and should be corrected right now.

As figured from the Peters trajectory tables, the exact drop figures (which we gave only roughly or in round figures) were 36.8 inches over 300 yards and 14.4 inches over 200 yards for the 225-grain bullet. That means 7.2 minutes (14.4 inches divided by 2.09 inches) on the sight as it was zeroed at 200 yards. At 300 yards this elevation would, of course, compensate for a drop of 7.2 times 3.14 inches, or 22.6 inches. Therefore, our correct allowance between 200 yards and 300 yards is the difference between 36.8 inches (the total drop) and 22.6 inches (the drop already compensated for by the 200-yard elevation). This makes it 12.2 inches or 3.88 minutes of angle. In other words, we would have to hold a foot high at 300 yards or add about 4 minutes of elevation on the sight.

As stated in our reply, practical methods are more definite. The actual drop can be obtained for each individual outfit only by actual shooting over the range involved.—F. C. N.



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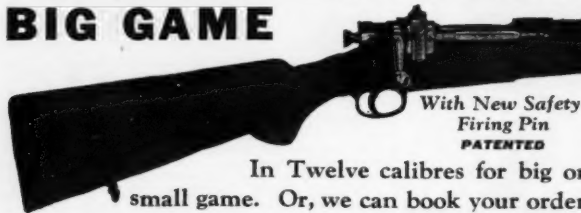
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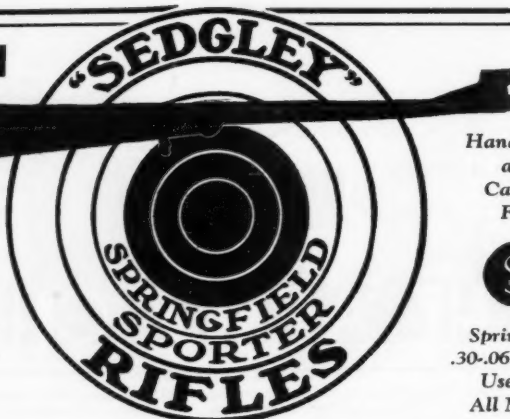
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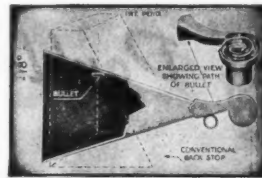


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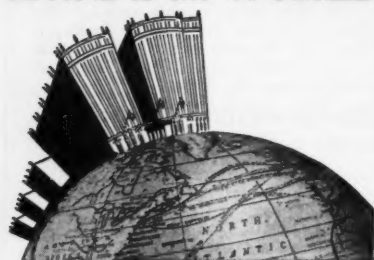
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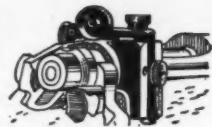
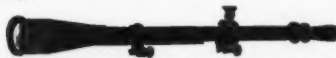
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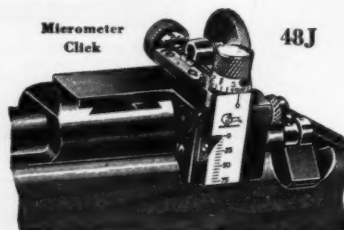
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GOERZ, Helinox, 6x30 binoculars, individual eye adjustment, excellent, \$39.75. Zeiss Delacita, 8x40, excellent, \$72.00. Hudson, R-52 Warren Street, New York. 2-38

SCOPES: 438 Lyman, good, \$12.00; 5A Lyman, good, \$23.00; A5 Win., good, \$18.00; B4 Win., good, \$12.00; 4X Fecker Small Game, \$25.00; 4X Unertl Small Game, \$25.00; 1-1/2 Fecker 10X, good, \$40.00; brand new Mossberg #6, \$55.50. 7x50 Zeiss Binocular, \$50.00. 8X Hensoldt Artillerie, \$22.00. 33X Vion Spotting, \$10.00. 10% discount on new Lyman, Fecker, Unertl, Zeiss, and Hensoldt Scopes and Binoculars. Liberal trade-in allowance. Smith Bros. Gun Store, Rochester, Penna. 2-38

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2 ONLY perfect B&L drawtube 20 power scopes, \$21.75 each. 2 B&L Sport Glasses, 2 1/2 power, regular \$16.00, only \$9.00 each. NEW. Hudson, R-52 Warren Street, New York. 2-38

LYMAN #422 Riflescopes, \$9.00, #438, \$15.75, Jr. Targets, \$40.50. Just arrived! New Weaver 330 and 440 Scopes, #29S, \$10.50, prepaid. Free Catalog. J. Warshal & Sons, First & Madison-BB, Seattle, Wash. 2-38

READY. Send for our new illustrated catalog showing arms, scopes, and binoculars. Stamp please. Kimball Arms Company, 221 Cambridge Road, Woburn, Mass. tf

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UNIVERSAL SCOPE STAND for rifle and pistol shooters. Post card for prices and information. Loder & Wilson, 1014 Cherry St., Erie, Pa. tf

NEW IMPROVED light weight checked pistol grip for Winchester 52, beavertail forearm. William P. Morrissey, Box #53, Middlefield, Conn. tf

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CASWELL Target Carriers give the shooter every possible point because they hold the target steady and require no exertion to operate. Fully equipped with ball-bearing pulley wheels they speed the target to a rigid support giving the shooter an honest measure of his ability. Caswell Target Carriers, Anoka, Minnesota. 2-38

GENUINE U. S. Army Leather slings, 1 1/4 inch, new, 80¢ each. Paul Jaeger, 4655 Fernhill Rd., Philadelphia, Pa. 2-38

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GENUINE U. S. Army soft pliable leather sling straps, 1 1/4", new, \$1.00 each. Hudson, R-52 Warren Street, New York. 2-38

ANNOUNCEMENT. The unexpected demand for #1 MONOMOUNTS has made possible production in quantities sufficient to justify reduction in retail price—now \$3.00, postpaid. #2 MONOMOUNTS and TWINMOUNTS. \$3.30. Small-bore Dope Books, 75¢. YOUR KEEPER'S KEEPER, \$1.00. Albrete, 110 Milk Street, Boston, Massachusetts. 2-38

PACHMAYR Revolver Grips, \$1.35. A-1 Gov't Slings, 50¢. Swivels 35¢ postpaid. Lyman 10X Targets, like new, \$45.00. Free catalog. Guns, Scopes, Sights. J. Warshal & Sons, First & Madison-BB, Seattle, Wash. 2-38

GOVERNMENT heavy flannel patches, .30 to .45 caliber. Bundle of 200 only 35¢. Hudson, R-52 Warren Street, New York. 2-38

ACCESSORIES for the pistol and rifleman. Also new and used hand guns. List. Ordnance Service Co., 165 East 32nd St., New York, N. Y. 2-38

HEAVY New Cowhide Government flap belt holsters for Colt Ace, Super and .45 Automatic, worth \$3.75, only \$1.95. Hudson, R-52 Warren Street, New York. 2-38



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36 knock-out blows without flinches by **15c** famous Police Jiu Jitsu - A little job with tip of fingers, or strike with edge of hand to right spot and tough guys go out like a light. Also many new fingered headlock breaks. Northwest "Mountain" use Jorgensen's system. G-Men must be Jiu Jitsu experts. Has been personally taught many in U.S. Army, Navy, Marines, National Guard, Coast Guard, Immigration, Border Patrol, Police, etc. & performed for the Movies. Whether you are young or old, man or woman, send now for new illustrated course. Full Price 15c. Size or strength mean nothing. Fear no man, gun, knife, or club. S. J. JORGENSEN, 1107 Mullins Building, Seattle, Wa.



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FOR TARGET & SMALL GAME—ECONOMICAL—ACCURATE—PRACTICAL—ADJUSTABLE FORCE—AMAZING MAXIMUM VELOCITY—SAFE. Single Shot with BOLT ACTION Hammer Fire—Hole Trigger—Safety—cal. 177 or 22 or BB. Price \$7.50. Holster \$2.00. Also 177 and 22 Single Shot Air Rifle \$7.50—Single Shot BB Air Rifle \$4.00—22 Shot BB Repeater Air Rifle \$7.50. At Dealer or Direct—No license required—SAFE. The only genuine compressed air pistols and rifles for shooting BB on the market. Full Details—Targets Free—Write Today for introductory offer. Benjamin Air Rifle Co., 807 Marion St., St. Louis, Mo., U.S.A.

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\$5 REQUIRE ABOUT ONE DAY TO FINISH
Send \$5 for Stoeger Peerless Walnut Stock for Enfield, Springfield, Krag, Mauser, Lebel, Winchester 88 and 54. Quality and fit guaranteed. Immediate delivery. Restocking folder free. A. F. STOEGER, 2507 Fifth Ave., New York, N.Y.

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ANTIQUE ARMS bought, sold, exchanged. Colts of any period wanted, particularly engraved ones and those fitted with ivory grips, cased outfits and the big heavy percussion models. List available. Stephen Van Rensselaer, Williamsburg, Virginia. 7-38

5 PERFECT FLINT ARROWHEADS, 20¢; 4 perfect Flint birdpoints, 20¢. 30 different named minerals, \$1.00. Curious and pistols. Catalog, 5¢. Lemley Curio Store, Northbranch, Kans. tf

WORLD WAR RELIC for clubhouse or den: Vickers Aircraft Machine Guns, cost Gov't. about \$700 ea., rendered unserviceable, no parts missing; Send M.O., Check or Draft for \$7.75 ea. (F.O.B., N. Y.) \$1.00 deposit on C.O.D. Orders. Free catalog on Fiala Sleeping Bags & Camping Equipment. Fiala Outfits, Inc., 10-a Warren St., New York. tf

ANTIQUE FIREARMS. Large stock. Send 15¢ for next three large lists. C. Weisz, 2412 Northland, Ave., Overland, Missouri. tf

LARGE STOCK of fine American and European arms. Write us your wants. Send 10¢ coin or stamps for 3rd edition catalog just ready. Kimball Arms Company, 20 Cambridge Road, Woburn, Mass. tf

MISCELLANEOUS

CANADA, THE RIFLEMAN'S PARADISE. Its true picture is given you in the pages of **ROD AND GUN IN CANADA**. Canada's national outdoor-life magazine. Each issue is packed with honest-to-goodness yarns of hunting and fishing in the Dominion, which has it second to none. Real stories that men can appreciate. Fine Gun Department edited by C. S. Landis. PRICE \$1.00 per year. Send 10¢ for Sample Copy. Rod and Gun, 1224 St. Catherine St., Montreal, Canada. tf

GUNBUGS! ATTENTION!!! OUTDOORS Magazine is featuring a monthly series of instructive articles on HOME GUNSMITHING. Another series illustrates and gives the histories of the various N.R.A. trophies. These articles in addition to the gun department are edited by Philip B. Sharpe, Life Member of the N.R.A. All American Rifleman readers sending in only ONE DOLLAR will receive OUTDOORS Magazine for the coming full year—twelve copies crammed from buttplate to muzzle with special things of interest to the sportsman. Also at least four back copies containing these articles will be sent to you free of charge WHILE THEY LAST so that you may have them for your files. Clip this ad and mail with \$1.00 to OUTDOORS MAGAZINE, 333 No. Michigan Ave., Chicago, Ill., Dept. N. tf

REAL BARGAINS!! Nine handsome bound RIFLEMAN volumes, 1929-1937, excellent \$30.00, each \$4.00. Six unbound years 1930-1935, \$10.00, each \$2.25. Malcolm Watson, Medford Hillside, Massachusetts. 2-38

PATENTS

PATENTS—Low cost. Easy terms. Book and information free. Highest references. L. F. Randolph, Dept. 370, 724 9th St., Washington, D. C. tf

CHESTER TIETIG, registered patent attorney, formerly chief inspector U. S. Army Ordnance Dept. 309 Mercantile Library Bldg., Cincinnati, Ohio. 12-38

RECEIVED TOO LATE TO CLASSIFY

10% DISCOUNT Lyman, Noske, Weaver, Fecker, Unertl, Malcolms Scopes. New Red-field mount, \$8.00. Free Catalog. J. Warshall & Sons, First & Madison-BB, Seattle, Wash. 2-38

SMITH & WESSON Revolver, 38-44 Outdoorsman, never been shot, perfect condition, cost \$40.00, sell \$30.00. Thos. P. Moore, 3308 Holmead Place, Washington, D. C. 2-38

DELUXE Remington 1917 Sporter, excellent, \$30.00. Krag 24", Lyman 34, very good, \$12.00. S&W 1917, holster, excellent, \$14.00. Colt .45 Auto, excellent, \$15.00. Wm. Hinton, Hiawatha, Kans. 2-38

WINCHESTER M/70 220 Swift, Lyman 48, new condition, \$55.00. Kirkwood Bros., Inc., 23 Elm St., Boston, Mass. 63 Year Gun Shop. 2-38

ZEISS Featherweight 8 power Deltrintem binoculars. Perfect, used once. Cost \$99.00, for sale \$56.00. WANTED to Trade: chemical analytical work, experimental work, formula compounding, etc., for guns, etc. A graduate chemist and life member Rifleman. Dr. Philip Fehlandt, College of Puget Sound, Tacoma, Washington. 2-38

EXCELLENT Vaver 35 MIE, \$9.00. Lyman 48J, \$5.00. H. P. Rettinger, Sunbury, Penna. 2-38

REMINGTON .44 C&B; .38 S&A barrel, engraved; short Woodsman; RIFLEMAN back issues. WANT—S&W Schofield; Russian. William Gray, 3111 W. 15th, Topeka, Kansas. 2-38

COLT ARMY Special, 5 in., fired about fifty times, \$19.00, or trade. Used Lawrence holster for K-22, \$1.75. Watson Green, Heflin, Ala. 2-38

BACK

OUR FIGHT FOR SANE GUN LAWS



JOIN THE SHOOTERS SERVICE ORGANIZATION

NATIONAL RIFLE ASSOCIATION Barr Building Washington, D. C.

I believe in the aims and purposes of the N. R. A., especially its constant fight for sane gun laws, and desire to support the good work as well as to avail myself of its services to members.

I certify that I am a citizen of the United States, over 18 years of age.

Attached is remittance of ☐ \$3.00 for 1 year's active membership.

☐ \$5.00 for 2 years' active membership.

Please send me a membership card, lapel button, a copy of the latest price list and enter my subscription to THE AMERICAN RIFLEMAN for the term indicated.

☐ Please check here if you have previously received literature from the N. R. A.

MY NAME _____

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I am glad to recommend the above applicant as a sportsman and citizen of good character.

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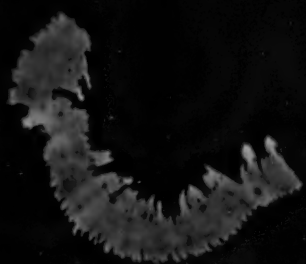
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Do You Like Our New Cover?

THE second appearance of a new magazine cover design is its "make or break" appearance. Once a group of readers have grown accustomed to one certain layout on the cover of a magazine any abrupt change from that layout is usually a slight shock to them. The following issue should completely demonstrate the reason for the change.

The old familiar cover of THE AMERICAN RIFLEMAN was often, and properly, criticized because so little space was allotted to that very important part of it—the photograph. Readers were continually saying, "Why not give us a good illustration on the cover?" or "I wish I could see more of the details of that photograph."

The new design is the answer. It leaves a clear space, nearly equal to a full page, for the cover illustration. The name of the magazine runs up the side instead of across the top in the orthodox manner, because 90% of the good shooting pictures are horizontal in composition and require a space wider than they are high. While the illustration on this issue is one of the relatively few good vertical shooting pictures it, too, is displayed to better advantage with this new arrangement.

The new cover is a logical and practical design resulting from a careful unbiased study of the problem of providing adequate and suitable display space for a good photograph of shooting interest on each new issue of the magazine. Many readers have already told us that they think it is a decided improvement.

There is room for other improvements in THE AMERICAN RIFLEMAN, but the editors believe that any other changes should be just as logical as those made in the cover and should reflect the expressed wishes of the majority of readers.

We know the magazine should contain some information on new guns, old guns, hand loading, gun-smithing, manufacturing methods, target shooting, hunting, club suggestions, anti-gun legislation and countless other aspects of the shooting game, but it is hard to estimate the relative importance of these subjects in the minds of the 60,000 members of the N. R. A. To help solve this problem the December RIFLEMAN carried a questionnaire asking you to tell what part of the magazine you liked best in 1937 and how you felt it could be improved.

There has been a flood of replies and a number of excellent criticisms of past editorial policies. All replies are being carefully studied and tabulated and will be used as the basis for planning the RIFLEMAN of the future.

Since there are still many readers who may have overlooked the questionnaire or neglected to mail it in we are reprinting it at the bottom of this page, which can be easily removed without defacing any other part of the magazine. *If you have already sent in a questionnaire from the December issue please do not double up on your vote by using this one, but if you didn't use the previous blank, take this opportunity to have a say in what the magazine should contain.*

THE VOTE TO DATE

Here is the latest tabulation showing the trend of the voting on the eight questions on the questionnaire. Your vote will help to swing the balance in favor of the things you like. All figures represent percentages of the total submitting questionnaires.

Question	Would	Would Not	No Choice	More of Both
1	40	38	8	14
2	42	50	8	
3	25	62	13	
4	24	60	16	
5	38	45	16	1
6	71	22	7	
7	40	42	11	7
8	81	13	6	

National Rifle Association,
Publishers of The American Rifleman,
Barr Building, Washington, D. C.

GENTLEMEN:

The 3 articles which I liked **best** in The American Rifleman during 1937 were (See Index for the year in the December issue):

1. _____
2. _____
3. _____

The 3 articles which I liked the **least** (or found least interesting) were:

1. _____
2. _____
3. _____

Strike out "would" or "would not"

1. I (would) like **more** question and answer letters in The Dope Bag with (would not) fewer reports on new accessories.
2. I (would) like a real antique firearms page to be added to our magazine. (would not) zine.
3. I (would) like more information regarding local club activities. (would not)
4. I (would) like to see more space given to scores and stories of Registered (would not) Shoots and State Matches.
5. I (would) like these tournaments to be covered by tabulation of winners (would not) and scores rather than in story form.
6. I (would) like to see **more** space devoted to such standard arms as the (would not) .30-06, .30-30, .25-20, .22 long rifle, 12 gauge shotgun, .38 and .45 revolvers and pistols with **less** space to such specialized arms as the various "magnums."
7. I (would) like to see **more** space devoted to deer, bear, elk, moose, etc., (would not) and **less** to groundhogs, squirrels, crows, etc.
8. I (would) like to see more space devoted to short elementary discussions (would not) of firearms and their use, such as the "Old Coach's Corner" which appeared in the January, 1937 issue.

Shoot in the MATCH OF THE MONTH

{ (Open to all individual N. R. A. members and members of affiliated clubs. All matches—rifle and pistol—are open to .22 caliber arms only. Figures shown thus (360 x 400) are minimum scores required for percentage medals. Entrance fee is \$1.00 unless otherwise indicated.) }

for FEBRUARY

There is still time to enter this month's matches—entries close February 15. Targets must be returned before February 28.

RIFLE

- 6** Prone, Any Sights, 50 Foot Event
100 shots in the prone position (900 x 1000).

PISTOL

- 11** Slow Fire 20 Yard Event
40 shots (348 x 400).

SPECIAL REQUEST

- 30** Any Sights, 75 Foot Championship
20 shots prone, 20 shots kneeling, 20 shots standing.

OTHER EVENTS

- 7** Standing Metallic Sights Free Rifle Match
50 shots at 50 feet—N. R. A. standing position (440 x 500).

- 8** Eagle Rifleman's Match
20 shots prone, 20 kneeling, 20 standing, any sights, 50 feet. Open only to N. R. A. distinguished gallery experts and distinguished small bore experts.

- 9** Women's Rifle Championship
50 shots, metallic sights, prone position, 50 feet. A separate set of medals for tyros. Entrance fee—50¢.

- 10** Timed Fire, 50 Foot Pistol Match
40 shots (369 x 400).

Postal Match Division,
National Rifle Association,
Barr Building, Washington, D. C.

GENTLEMEN:

I want to enter the N. R. A. gallery home range matches whose numbers I have circled. My remittance of \$_____ is enclosed.

February Matches

6 7 8 9
10 11 30

March Matches

12 13 14 15
16 17 18 19 20

My Name Is _____

Address _____

City and State _____

for MARCH

Entries close March 15. Targets must be returned before March 31.

RIFLE

- 13** Any Sights, 50 Foot Championship
20 shots prone, 20 kneeling and 20 standing (560 x 600).

PISTOL

- 19** Timed Fire, 20 Yard Match
40 shots, timed fire, 8 strings of 5 shots fired in 20 seconds per string (360 x 400).

OTHER EVENTS

- 12** Prone, Any Sights, 75 Foot Rifle Match
100 shots prone, an open event (990 x 1000).

- 14** Tyro 75 Foot Rifle Match
50 shots at 75 feet with metallic sights—shooters are classified according to the value of their equipment with separate medals for each class. Entrance fee—50¢.

- 15** Men's Intercollegiate Rifle Championship
20 shots prone, 20 kneeling, and 20 standing, with metallic sights at 50 feet. Open only to undergraduates of colleges or universities affiliated with the N. R. A. or to individual N. R. A. members who are undergraduate students.

- 16** Scholastic Rifle Championship
50 shots prone with metallic sights at 50 feet. Open only to undergraduate high school students in their 9th to 12th school years who are individual junior or club members of the N. R. A. Military school students are ineligible. Entrance fee—25¢.

- 17** Military School Rifle Championship
10 shots, prone, 10 sitting, 10 kneeling, and 10 standing, with metallic sights at 50 feet. Open only to military school undergraduates who are individual junior or club members of the N. R. A. Entrance fee—25¢.

- 18** Rapid Fire 50 Foot Pistol Match
40 shots in 8 strings of 5 shots fired in 10 seconds per string (320 x 400).

- 20** Tyro Slow Fire 50 Foot Pistol Match
40 shots slow fire at 50 feet. Open only to non-medal winners in state or national tournaments (360 x 400). Entrance fee—50¢.

USE THIS BLANK TO ENTER ALL MATCHES
FOR FEBRUARY AND MARCH

Keep the wildlife chain unbroken



Sportsmen who observe the rules of wise conservation not only enjoy an abundant game supply—but bequeath this priceless heritage to sportsmen yet unborn.

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THE record of Western Xpert .22 Long Rifle in pistol competition parallels its performance in the guns of many of the country's best small-bore riflemen.

Twin cartridge to the sensational Super-Match ammunition which was used by 66% of all the winners of small-bore events at the 1937 Camp Perry National Matches, Xpert gives you exceptional accuracy at *no extra cost*. It is the same as Super-Match except in the hand operations incidental to the loading and testing of match ammunition.

Indoors, Xpert is just as pleasant to shoot as Super-Match for it is also **SMOKELESS!** It doesn't lay down a smoke screen between you and the target after every shot. The sure-fire primer is non-corrosive. The bullets are lead lubricated.

Try Xpert .22 Long Rifle. It functions perfectly. Also available in .22 Short and .22 Long, with comparable qualities of accuracy and uniformity.... Full particulars are given in the seventy-two page Western Ammunition Handbook. Mail the coupon.

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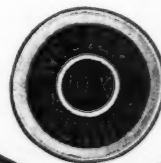
Send, without charge, the 72-page Western Ammunition Handbook, the complete guide to modern shooting. Tells all about XPERT and SUPER-MATCH smokeless .22 caliber ammunition.

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These attractive Western brassards are available to riflemen in recognition of expert shooting under match conditions:—for a 10-X possible at 50 yards with iron sights, or 100 yards any sights—for a 400 possible over the Dewar course, any sights—or a 400 possible at 50 meters, any sights.

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